MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2001

Musgrave Lake Zurich, Montana



Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION 2701 Prospect Ave Helena, MT 59620-1001

July 2002

Project No: 130091.019

Prepared by:

LAND & WATER CONSULTING, INC. P.O. Box 8254 Missoula, MT 59807



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Completed 2001 Wetland Delineation Forms

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1.0 INTRODUCTION

The Musgrave Lake wetland mitigation project was constructed in late 2000/early 2001 in Watershed 11 (Milk River). It is anticipated that this site will compensate for wetland impacts resulting from several proposed Montana Department of Transportation (MDT) highway and bridge reconstruction projects along the U.S. Highway 2 corridor between Havre and Harlem. Constructed on private land in the MDT Great Falls District, the mitigation site is located approximately four miles south of Zurich and the U.S. Highway 2 corridor within 0.25 mile of the Milk River in Blaine County (**Figure 1**). The goal of the project is to restore hydrology via construction of ditch plugs in natural drained wetland basins and historic oxbow sections, providing approximately 27 acres of wetland credit within the confines of a 100-acre conservation easement.

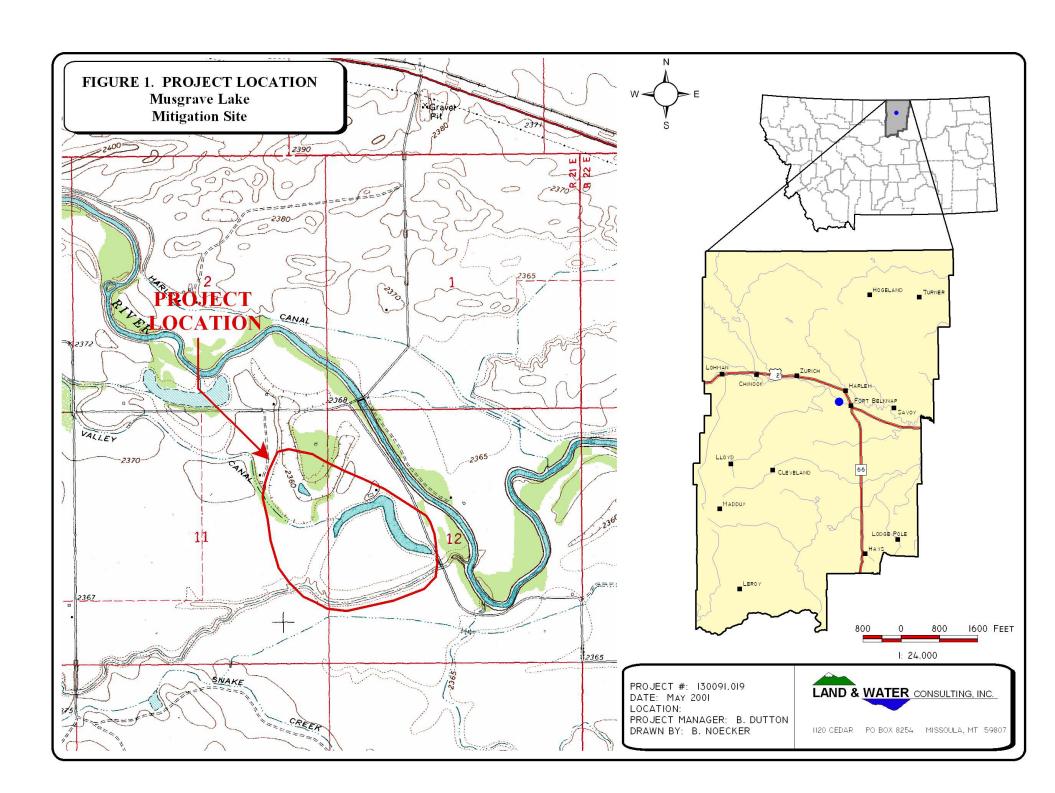
The approximate site boundary is illustrated on **Figure 2** (**Appendix A**), and the original conceptual layout is provided in **Appendix D**. The project is comprised of two "restoration" sites and two "enhancement" sites. Restoration Site 1 (RS1) occurs in a basin in the northwest corner of the mitigation area. Restoration Site 2 (RS2) occurs within a drained and farmed historic oxbow section of Musgrave Lake located along the south property boundary. Wetland hydrology in these areas is to be supplied by precipitation, surface runoff, and possibly groundwater, and is anticipated to result in maximum depths of 3-3.5 feet and 1-1.5 feet at RS1 and RS2, respectively.

Approximately 4.6 acres of impaired, low-quality wetlands were delineated by MDT at RS1 prior to project implementation. However, given the restoration of hydrology, the Corps of Engineers (COE) has approved allocation of 1:1 credit at the two basins, inclusive of these existing impaired wetlands (1:1 ratio) (Urban pers. comm.). No pre-project wetlands were delineated by MDT at RS2. A target of 24.5 credit acres was established in these two basins by the landowner (Musgrave Lake Ranch LLC [MLR] 2001). An additional 0.75 acre of credit was proposed by the landowner and tentatively approved by the COE (2001) for maintenance of at least three acres of 75-foot wide upland buffer around all wetland and riparian areas (4:1 ratio).

The project further intends to enhance approximately 11 acres of Musgrave Lake at two areas contained within the 100-acre easement. These areas are referenced as Enhancement Site 1 (ES1) and Enhancement Site 2 (ES2) (**Figure 2, Appendix A**). Although currently wetland, Enhancement Site 1, the "middle" portion of Musgrave Lake, is separated from the lake's southern arm by an earthen dike and was impacted by a large drainage ditch, a perched culvert causing headcutting & associated sedimentation, and chronic overgrazing. Enhancement Site 2, the "lower" portion of Musgrave Lake, is also currently wetland and was impacted by grazing.

The project attempts to remedy these problems by relocating the water control structure, installing a larger culvert, and revising the grazing system. Grazing will be prohibited for five years, after which grazing prescriptions will follow a Natural Resources Conservation Service grazing management plan. Assuming that an appropriate increase in wetland functional condition is achieved, a ratio of 3:1 was tentatively approved by the COE, resulting in 3.7 acres of mitigation credit in these areas as proposed by the landowner (MLR 2001).





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The wetland credit breakdown proposed by the landowner (MLR 2001) and tentatively approved by the COE (2001), once performance standards are met, is as follows:

Restoration Site 1: 13.6 acres, 1:1 ratio, 13.6 credits
Restoration Site 2: 10.9 acres, 1:1 ratio, 10.9 credits
Enhancement Sites 1 and 2: 11.2 acres, 3:1 ratio, 3.7 credits
Upland Buffer: 3 acres, 4:1 ratio, 0.75 credits

Total Credits: 28.95 acres

To achieve a 3:1 ratio for wetland enhancement, the COE has required that significant functional improvement be demonstrated (COE 2001). This will occur if the composite functional assessment score improves to within 10 percent of that achieved at the onsite reference wetland (**Figure 2**; see **Appendix C** for completed pre-project functional assessment forms). The COE (2001) further stated that "enhancement of an existing wetland must show significant functional increase to qualify for any credit. Simply changing the character or type of an existing good wetland to a different type of equally good wetland may not qualify for credit." Other than these improvements to functional attributes, and a five-year monitoring term, no performance standards or success criteria were required by the COE or other agencies.

As the site was recently constructed, no previous monitoring was conducted by MDT. The Musgrave Lake site will be monitored twice per year over the 3-year contract period to document wetland and other biological attributes. The monitoring area is illustrated in **Figure 2** (**Appendix A**).

2.0 METHODS

2.1 Monitoring Dates and Activities

The site was visited on May 15th (spring) and July 16-17 (mid-season) 2001. The primary purpose of the spring visit was to conduct a bird/general wildlife reconnaissance. The mid-May period was selected for the spring visit because monitoring between mid-May and early June is likely to detect migrant as well as early nesting activities for a variety of avian species (Carlson pers. comm.), as well as maximizing the potential for amphibian detection. In Montana, most amphibian larval stages are present by early June (Werner pers. comm.).

The mid-season visit was conducted between late June and late July to document vegetation, soil, and hydrologic conditions used to map jurisdictional wetlands. All information contained on the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at this time. Activities and information conducted/collected included: wetland delineation; wetland/open water boundary mapping; vegetation community mapping; vegetation transects; soils data; hydrology data; bird and general wildlife use; photograph points; macroinvertebrate sampling; GPS data points; functional assessment; and (non-engineering) examination of dike structures.



2.2 Hydrology

Hydrologic indicators were evaluated at the site during the mid-season visit. Approximate designed water depths are shown on the conceptual restoration plan in **Appendix D**. Wetland hydrology indicators were recorded using procedures outlined in the Army Corps 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**).

All additional hydrologic data were recorded on the mitigation site monitoring form (**Appendix B**). The boundary between wetlands and open water (no rooted vegetation) aquatic habitats was mapped on the aerial photograph and an estimate of the average water depth at this boundary was recorded.

No groundwater monitoring wells were installed at the site. If located within 18 inches of the ground surface (soil pit depth for purposes of delineation), groundwater depths were documented on the routine wetland delineation data form at each data point.

2.3 Vegetation

General dominant species-based vegetation community types (e.g., *Typha latifolia/Scirpus acutus*) were delineated on an aerial photograph during the mid-season visit. Standardized community mapping was not employed as many of these systems are geared towards climax vegetation and may not reflect yearly changes. Estimated percent cover of the dominant species in each community type was listed on the site monitoring form (**Appendix B**).

Four 10-foot wide belt transects were established during the mid-season monitoring event to represent the range of current vegetation conditions. Transects were placed at RS 1, RS 2, ES 1, and ES 2. Percent cover was estimated for each vegetative species encountered within the "belt" using the following values: + (<1%); 1 (1-5%); 2 (6-10%); 3 (11-20%); 4 (21-50%); and 5 (>50%).

Approximate transect locations are depicted on **Figure 2** (**Appendix A**). The transects will be used to evaluate changes over time, especially the establishment and increase of hydrophytic vegetation. Transect locations were marked on the air photo and all data recorded on the mitigation site monitoring form. Transect endpoint locations were recorded with the GPS unit. Photos along each transect were taken from both ends during the mid-season visit.

A comprehensive plant species list for the site was compiled and will be updated as new species are encountered. Ultimately, observations from past years will be compared with new data to document vegetation changes over time. Woody species were not planted at this mitigation site. Consequently, no monitoring relative to the survival of such species was conducted.

2.4 Soils

Soils were evaluated during the mid-season visit according to hydric soils determination procedures outlined in the COE 1987 Wetland Delineation Manual. Soil data was recorded for



each wetland determination point on the COE Routine Wetland Delineation Data Form (**Appendix B**). The most current terminology used by NRCS was used to describe hydric soils (USDA 1998).

2.5 Wetland Delineation

Wetland delineation was conducted within the 100-acre easement (exclusive of the reference wetland area) during the mid-season visit according the 1987 COE Wetland Delineation Manual. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation and hydric soils. The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary was delineated on the air photo and recorded with a resource grade GPS unit. The wetland/upland boundary in combination with the wetland/open water habitat boundary was used to calculate the wetland area developed at each impoundment.

2.6 Mammals and Herptiles

Mammal and herptile species observations and other positive indicators of use, such as vocalizations, were recorded on the wetland monitoring form during each visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. Observations were recorded as the observer traversed the site while conducting other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive list of observed species was compiled. Observations from past years will ultimately be compared with new data.

2.7 Birds

Bird observations were recorded during each visit. No formal census plots, spot mapping, point counts, or strip transects were conducted. During the spring visit, observations were recorded in compliance with the bird survey protocol in **Appendix E**. During the mid-season visit, bird observations were recorded incidental to other monitoring activities. During all visits, observations were categorized by species, activity code, and general habitat association (see field and office data forms in **Appendix B**). Observations from past years will be compared with new data.

2.8 Macroinvertebrates

A total of four macroinvertebrate samples, one at each area, were collected during the midseason site visit and data recorded on the wetland mitigation monitoring form. Macroinvertebrate sampling procedures are included in **Appendix E**. The approximate locations of these sample points are shown on **Figure 2**, **Appendix A**. Samples were preserved as outlined in the sampling procedure and sent to a laboratory for analysis.



2.9 Functional Assessment

Functional assessment forms were completed for each of the four sites using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were generally collected during each mid-season site visit. An abbreviated field data sheet for the 1999 MDT Montana Wetland Assessment Method was compiled to facilitate rapid collection of field information (**Appendix B**). The remainder of the functional assessment was completed in the office.

Pre-project functional assessments of the mitigation site and reference area are included in **Appendix D**.

2.10 Photographs

Photographs were taken during the mid-season visit showing the current land use surrounding the site, the upland buffer, the monitored area, macroinvertebrate sampling locations, and the vegetation transects. Each photograph point location was recorded with a resource grade GPS. The approximate location of photo points is shown on **Figure 2**, **Appendix A**. All photographs were taken using a 50 mm lens. A description and compass direction for each photograph was recorded on the wetland monitoring form.

2.11 GPS Data

During the 2001 monitoring season, survey points were collected with a resource grade GPS unit at the vegetation transect beginning and ending locations, at all photograph locations, and at macroinvertebrate sampling locations. Wetland boundaries were also surveyed with a resource grade GPS unit.

2.12 Maintenance Needs

Dike structures were examined during site visits for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented.

3.0 RESULTS

3.1 Hydrology

Inundation was present, to some extent, at each of the four sites. Water depths at open water/rooted vegetation interfaces ranged between approximately 20 inches and five feet. Open water areas are shown on **Figure 3** (**Appendix A**). Specific recorded values are provided on the attached data forms. According to the Western Regional Climate Center, the year-end 2001 precipitation total for Chinook (7.51 inches) was only 60 percent of the total annual mean precipitation (12.6 inches) in this area. Thus, this year-1 evaluation was conducted during s subnormal precipitation year.



RS1 was approximately 40 percent inundated, with an average depth of four to six inches and a range of depths from 0 to three feet. Deepest areas were located at the foot of the dike in the northwest corner, which were as yet unvegetated. A groundwater component appears to contribute to this site, possibly resulting from upslope irrigation ditch seepage.

RS2 was approximately 10 percent inundated, with an average depth of 6 inches, and a depth range of 0 to five feet. A deep pool occurs where water enters the site through a culvert at the northwest end. The vast majority of this site east of the ditch/dike was not inundated, although some stranded *Lemna minor* was observed about 300-400 feet east of the dike, indicating inundation earlier in the year. Weak hydrological indicators (cracked, moist soils) indicated that saturation likely occurred further to the east. The ranch lessee noted that the standpipe was overflowing earlier in the year, and is likely set too low to achieve total inundation to the east. He recommended that the pipe should be raised by at least two feet.

ES1 was approximately 15 percent inundated, with an average depth of 24 inches and a range of depths from 0 to 30 inches. Only the ditch section of this site was inundated or showed recent evidence of inundation. ES2 was approximately 60 percent inundated, with an average depth of 12 inches and a range of depths from 0 to over six feet. Deepest areas were located in open water areas in the west portion of this site.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. Six wetland community types were identified and mapped on the mitigation area (**Figure 3**, **Appendix A**). These included Type 1: *Typha latifolia/Scirpus acutus*, Type 2: *Alopecurus pratensis/Polygonum lapathifolium*, Type 3: *Salix exigua*, Type 4: *Potamogeton/Myriophyllum*, Type 5: *Carex*, and Type 6: *Hordeum jubatum/Rumex crispus*. Dominant species within each of these communities are listed on the attached data form (**Appendix B**).

Type 1 occurs commonly at RS1, ES1, and ES3. Type 2 occurs primarily in newly developing wetland areas of RS1. Type 3 occurs in patches at ES1, ES2, and RS2. Type 4 occurs in flooded areas at all sites; primarily within ditches or deeper areas. Type 5 occurs primarily at ES1 and ES2. Type 6 is regulated to the majority of RS2, east of the main dike area.

Upland communities range from upland forest dominated by mature plains cottonwood (*Populus deltoides*), chiefly occurring along the south and east borders of RS1, to small kochia (*Kochia scoparia*) and smooth brome (*Bromus inermis*)-dominated areas, to hayland dominated by alfalfa (*Medicago sativa*) and/or foxtail barley (*Hordeum jubatum*).



Table 1: 2001 Musgrave Lake Vegetation Species List

Species	Region 9 (Northwest) Wetland Indicator
Acer negundo	FAC+
Agropyron repens	FACU
Agrostis alba	FACW
Alisma plantago-aquatica	OBL
Alopecurus pratensis	FACW
Apocynum androsaemifolium	
Arctium minus	
Asclepias speciosa	FAC+
Asparagus officinalis	
Beckmannia syzigachne	OBL
Bromus inermis	
Carex lanuginose	OBL
Carex praegracilis	FACW
Carex stipata	OBL
Carex utriculata	OBL
Carex vesicaria	OBL
Carex vulpinoides	OBL
Chenopodium album	FAC
Cicuta douglasii	OBL FAC-
Corrue stolonifora	FAC- FACW
Cornus stolonifera	
Elaeagnus angustifolia Eleocharis acicularis	FAC OBL
Eleocharis palustris	OBL
Festuca sp.	UBL
Glyceria grandis	OBL
Glycyrrhiza lepidota	FAC+
Helianthus annuus	FACU+
Hordeum jubatum	FAC-
Juncus effuses	FACW
Kochia scoparia	FAC
Lemna minor	OBL
Lycopus americanus	OBL
Medicago sativa	
Myriophyllum spicatum	OBL
Phalaris arundinacea	FACW
Phleum pratense	FAC-
Plantago major	FAC+
Poa pratensis	FAC
Polygonum amphibium	OBL
Polygonum erectum	FACW-
Polygonum lapathifolium	FACW
Polygonum persicaria	FACW
Populus deltoids	FAC
Potamogeton natans	OBL
Potentilla anserine	OBL
Prunus virginiana	FACU
Ranunculus occidentalis	FAC
Rosa nutkana	FAC-
Rumex crispus	FACW
Sagittaria cuneata	OBL
Salix exigua	OBL
Salix lutea	OBL
Scirpus acutus	OBL
Scirpus americanus	OBL
Scirpus maritimus	OBL
Scirpus validus	OBL
Sium suave	OBL
Solidago canadensis	FACU
Sparganium eurycarpum	OBL
Symphoricarpos occidentalis	 EACH
Taraxacum officinale	FACU
Typha latifolia	OBL



Vegetation transect results are detailed in the attached data form, and are summarized graphically below.

RS1 Start	Uplan (45')	d Type 2 (35')	Туре 1 (1.	10') Type 2 (195')		Upland (115')	Total: 500'	RS1	End
RS2 Start	Uplan (20')	d Type 6 (8	(0°)	Uplan	nd (70')	Total: 170'	RS2 E	nd	
ES1 Start	Uplan	d (18') Type 5	(68')		**********	Total: 86'	ES2 End		
ES2 Start	Upland (7')	Type 1 (18')	Type 5 (10')	Type 1 (53')	Type 3 (11')	Upland (38')	Tot		S2 and

3.3 Soils

According to the Blaine County soil survey (Soil Conservation Service 1986), soils at RS1 and the proposed enhancement areas are Typic Fluvaquents. These are somewhat poorly drained or poorly drained silty clays and silty clay loams that formed in alluvium in areas with seasonally high water tables, usually during the irrigation season. Typic Fluvaquents are not suited to cultivated crops, windbreaks, or most urban uses due to flooding and general wetness.

These characteristics were generally confirmed during monitoring. Soils sampled in wetland areas within RS1 consistently were comprised of silty clays with a matrix color of 2.5Y4/2 with mottles in the range of 10YR 5/8, indicating a fluctuating water table. Soils at ES 1 and ES2 were comprised of silty clay with a matrix color of 2.5Y3/1 to 2.5Y3/2 and mottles at 7.5YR5/8. Strong sulfidic odor was also noted at RS1 and ES2, which is indicative of waterlogged soils that are permanently saturated and have sulfidic material near the soil surface. Wetland soils were saturated or inundated at the time of the survey.

Soils at RS2 consist of Havre silty clay loam, saline. This is a well-drained soil formed in alluvium on flood plains and stream terraces. Permeability is moderately slow, and the available water capacity is moderate because of the effects of salts and sodium. According to the Soil Survey, this soil type is often subject to rare flooding. Soils were sampled at RS2 in the eastern, more "marginal" areas of the wetland. Soils were comprised of silty clay loams with a matrix color of 2.5Y3/2 and faint mottles of a 10YR5/8 color. Soils were not saturated during the survey, but had been wet earlier in the year as evidenced by a strongly cracked surface. Soils in this area will likely develop stronger hydric characteristics as the hydroperiod is increased.

3.4 Wetland Delineation

Delineated wetland boundaries are illustrated on **Figure 3**. Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Delineation results are as follows:



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RS1: 4.59 wetland acres impaired pre-existing, but currently "restored"

2.58 additional wetland acres "restored"

0.05 acre open water

RS2: 0 wetland acres pre-existing

2.33 wetland acres "restored"

0.19 acre open water

ES1: 4.3 wetland acres pre-existing within delineation area (see below)

0.5 estimated (planimeter) additional wetland acres within easement area north of ditch

ES2: 2.28 wetland acres pre-existing within delineation area (see below)

0.83 acres open water

Inclusive of minor open water areas, approximately 9.74 wetland acres have been "restored" on the mitigation site to date.

In addition to wetland borders delineated during the 2001 mid-season visit, RS1 also contains approximate borders of pre-existing, impaired wetlands delineated by MDT that were referenced in the introduction to this report. No wetlands were noted developing below the RS1 dike in addition to pre-existing wetlands associated with the ditch. No pre-existing wetlands were delineated by MDT at RS2.

Wetland borders of ES1 and ES2 were also delineated, although the north border of ES1 and the west border of ES2 were drawn based on the approximate easement borders in these areas and are therefore "artificial". The north border of ES1 was drawn along the path of the ditch flowing into the site from the west, even though the actual wetland is contiguous to the north and connects to ES2. The west border of ES2 was drawn along the approximate easement border, although the wetland is contiguous to the west and connects to ES1. Any wetland expansion relative to these areas is most likely to occur along the south border of ES1 (along the dike) and/or along the east border of ES2, both of which were carefully delineated and will be monitored for future changes.

3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001 monitoring efforts are listed in **Table 2**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. Five mammal, two herptile, and numerous bird species were noted using portions of the mitigation site.

Of special interest were numerous observations of northern leopard frogs (*Rana pipiens*) at each of the four sites. Leopard frogs are considered a "species of special concern" by the Montana Natural Heritage Program (MNHP) due largely to their apparent extirpation from the portion of their historic distribution west of the Continental Divide. This species has been assigned ranks of S1 (critically imperiled) west of the Divide and S3 (rare occurrence and/or restricted range and/or vulnerable to extinction) east of the Divide by the MNHP.



Table 2: Fish and Wildlife Species Observed on the Musgrave Lake Mitigation Site

FISH

Unidentified Minnow Species (Hybognathus sp.)

AMPHIBIANS

Great Plains Toad (Bufo cognatus)** Northern Leopard Frog (Rana pipiens)

REPTILES

Plains Garter Snake (*Thamnophis radix*)

BIRDS

American Kestrel (Falco sparverius) American Robin (*Turdus migratorius*) American Wigeon (Anas americana)* Barn Swallow (Hirundo rustica) Belted Kingfisher (Ceryle alcyon)* Black-billed Magpie (*Pica pica*)

Black-capped Chickadee (Poecile atricapillus)*

Blue-winged Teal (Anas discors)* Bobolink (Dolichonyx oryzivorus)*

Brewer's Blackbird (Euphagus cyanocephalus)

Brown-headed Cowbird (*Molothrus ater*)

Bufflehead (Bucephala albeola)* Bullock's Oriole (*Icterus bullockii*) Canada Goose (Branta Canadensis) Canvasback (Aythya valisineria)* Cedar Waxwing (Bombycilla cedrorum) Clay-colored Sparrow (Spizella pallida) Cliff Swallow (Petrochelidon pyrrhonota)* Common Grackle (Quiscalus quiscula)*

Common Nighthawk (Chordeiles minor) Common Snipe (Gallinago gallinago)

Common Yellowthroat (Geothlypis trichas)*

Eastern Kingbird (*Tyrannus tyrannus*) European Starling (Sturnus vulgaris)

Gadwall (Anas strepera)*

Gray Catbird (Dumetella carolinensis)* Great Blue Heron (Ardea herodias)* Green-winged Teal (Anas crecca)* House Wren (Troglodytes aedon)* Killdeer (Charadrius vociferous)

Least Flycatcher (Empidonax minimus)*

Mallard (*Anas platyrhynchos*) Marbled Godwit (*Limosa fedoa*) Marsh Wren (Cistothorus palustris) Mourning Dove (*Zenaida macroura*) Northern Flicker (Colaptes auratus)* Northern Harrier (Circus cyaneus)

Northern Rough-winged Swallow (Stelgidopteryx

serripennis)

Northern Shoveler (*Anas clypeata*)*

Orange-crowned Warbler (*Vermivora celata*)

Red-tailed Hawk (Buteo jamaicensis)

Red-winged Blackbird (Agelaius phoeniceus)

Ring-billed Gull (Larus delawarensis)

Ring-necked Pheasant (*Phasianus colchicus*)

Rock Dove (Columba livia)

Savannah Sparrow (Passerculus sandwichensis)*

Solitary Sandpiper (*Tringa solitaria*) Song Sparrow (Melospiza melodia)*

Sora (Porzana Carolina)

Spotted Sandpiper (Actitis macularia) Tree Swallow (Tachycineta bicolor)* Upland Sandpiper (Bartramia longicauda)

Warbling Vireo (Vireo gilvus)*

Western Meadowlark (Sturnella neglecta) Western Wood-pewee (Contopus sordidulus)* Willet (Catoptrophorus semipalmatus)

Wilson's Phalarope (Phalaropus tricolor)*

Wood Duck (Aix sponsa)*

Yellow Warbler (*Dendroica petechia*) Yellow-headed Blackbird (Xanthocephalus

xanthocephalus)

MAMMALS

American Beaver (Castor Canadensis)

Long-tailed Weasel (*Mustela frenata*)

Raccoon (*Procyon lotor*)

Richardson's Ground Squirrel (Spermophilus richardsonii)

White-tailed Deer (Odocoileus virginianus)

* Birds observed 6/10/01 by Jim Stutzman in 2001 that were not observed during formal 2001 monitoring activities.

** Observed by MDT in 1999; not observed during formal 2001 monitoring activities.



3.6 Macroinvertebrates

Macroinvertebrate sampling results are provided in **Appendix B** and summarized below.

RS1: Calculated scores for this area suggest optimal biotic conditions. The biotic index is low, implying good water quality. Taxa richness and midge taxa richness are both high, suggesting ample habitats.

RS2: Sub-optimal biological conditions are implied by scores calculated for this site. The biotic index is somewhat elevated, suggesting mild impairment of water quality, perhaps by nutrients or warm temperatures. The fauna at this site was rich and diverse, however, as was the Chironomid assemblage. Invertebrates were particularly abundant at this site. These findings imply good habitat availability. Notable was the presence of fish in the sample taken here.

ES1: Near-optimal biologic conditions are indicated by this analysis. High taxa richness and a diverse midge assembly are indicators of ample habitat availability. The biotic index value is somewhat elevated, suggesting mild impairment of water quality, perhaps by nutrients and/or warm water temperatures.

ES2: There were 85 organisms present in the sample taken at this site, probably too few for valid bioassessment. Whether this depauperate assemblage reflects actual conditions, or whether it is an artifact of sampling methods is not clear from the data.

3.7 Functional Assessment

Completed functional assessment forms are presented in **Appendix B**. Functional assessment results are summarized in **Table 3**. For comparative purposes, the functional assessment results for the reference wetland site and baseline conditions prepared by MDT and the landowner are also included in **Table 3**. RS1, ES1, and ES2 rated as Category II wetlands, primarily due to high wildlife habitat ratings. Each of these sites provides habitat for a wide variety of wildlife species. ES1 and ES2 also support high vegetative community diversity, and provide a degree of fish habitat. RS2 rated as a Category III wetland. Sediment/nutrient/toxicant removal is a prominent function at this site.

Based on the baseline functional assessments conducted by MDT and the landowner, the site has experienced an apparent gain of 38 functional units (acreage x functional points) at restoration sites RS1 and RS2, and 11.5 functional units at ES1. Some of this lift at ES1 may be due to differing approaches to completing the assessment form. No pre-project functional assessment was conducted at RS2 due to the absence of wetlands, and none was conducted at ES2 (Urban pers. comm.). Thus, functional unit "gain" at ES2 could not be calculated.

The composite scores for each of ES1 and ES2 are currently at or in excess of the composite score for the reference wetland. This is partially due to the fact that some variables evaluated and scored for the enhancement sites were not evaluated for the reference wetland, resulting in additional points assigned to the enhancement sites. Functional gain at the enhancement sites will likely need to be compared to the reference wetland in terms of percentage of possible score



12

achieved, functional units, individual functions, or some combination. This should be worked out with the COE and the landowner so that gains can be accurately tracked over the monitoring period.

3.8 Photographs

Representative photographs taken from photo-points and transect ends are provided in **Appendix** C.

3.9 Maintenance Needs/Recommendations

All dikes were in good condition during the spring and mid-season visits. However, MDT has noted that small mammals have recently been burrowing into the southern-most dike at RS2 (Urban pers. comm.). Any such burrows should be repaired, and a long-term solution to this, such as installation of rodent-proof mesh along the dike face, should be considered.

As mentioned in the Hydrology section, the ranch lessee noted during the mid-season visit that the standpipe at RS2 was overflowing earlier in the year, and is likely set too low to achieve total inundation to the east. This was generally confirmed by the general termination of long-term inundation evidence beyond 300 to 400 feet east of the standpipe. The lessee recommended that the pipe should be raised by at least two feet. It is our recommendation that the elevation of the standpipe be re-evaluated and, if necessary, reset to maximize inundation to the east along the historic oxbow.

It is recommended that MDT or the landowner complete a baseline functional assessment for ES2 to provide an accurate basis for future comparison.

3.10 Current Credit Summary

As the project stands, approximately 9.74 acres of wetlands have apparently been restored at RS1 and RS2, inclusive of minor open water components.

A degree of functional enhancement has been achieved across about 4.8 acres within the easement area at ES1, currently calculated at an approximate 11.5 functional unit "gain". A degree of functional enhancement may have been achieved across about 3.11 acres within the easement area at ES2, however, a baseline functional assessment was not conducted with which to compare 2001 results. The method of credit calculation at these enhancement sites is unresolved; however, an applied 1:3 credit ratio at ES1 would result in approximately 1.6 acres of credit. Also, it should be noted that the total wetland acreage within the easement area at enhancement sites appears to be approximately 3 acres short of the original 11-acre estimate, reducing the amount of credit available at these sites.

Approximately 0.75 acre of credit is associated with the upland buffer surrounding wetlands. Consequently, the maximum assignable credit at this site (RS1, RS2, ES1, and upland buffer) as of 2001 is approximately 12.09 acres, not including any enhancement that may have occurred at ES2.



Table 3: Summary of 2001 Wetland Function/Value Ratings and Functional Points ¹ at the Musgrave Lake Mitigation Project

Function and Value Parameters			Wetland Numb	oers			
From the 1999 MDT Montana Wetland Assessment Method	Reference Wetland (Stutzman 1999)	Pre-Project RS1 (Stutzman 1999) ²	Pre-Project ES1 (MDT 1999)	2001 RS1	2001 RS2	2001 ES1	2001 ES2
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.0)	Low (0.3)	Low (0.3)
MNHP Species Habitat	Mod (0.7)	Low (0.1)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)
General Wildlife Habitat	High (0.9)	Low (0.1)	Mod (0.7)	high (0.9)	Mod (0.5)	High (0.9)	High (0.9)
General Fish/Aquatic Habitat	NA	NA	Low (0.3)	NA	Low (0.3)	Low (0.3)	Mod (0.5)
Flood Attenuation	Mod (0.5)	Low (0.1)	Mod (0.5)	NA	Low (0.2)	Mod (0.4)	Mod (0.5)
Short and Long Term Surface Water Storage	High (1)	Low (0.2)	Low (0.3)	Mod (0.6)	Low (0.3)	Low (0.6)	High (1)
Sediment, Nutrient, Toxicant Removal	Mod (0.7)	Mod (0.4)	Low (0.2)	NA	High (1)	High (0.9)	High (1)
Sediment/Shoreline Stabilization	NA	NA	Low (0.2)	NA	NA	Mod (0.6)	High (1)
Production Export/ Food Chain Support	High (0.9)	Mod (0.5) [Low 0.2]	Mod (0.7)	High (0.8)	Mod (0.7)	High (0.8)	High (0.9)
Groundwater Discharge/ Recharge	High (1)	NA	NA	High (1)	High (1)	High (1)	High (1)
Uniqueness	Low (0.3)	Low (0.2)	Low (0.1)	Mod (0.4)	Low (0.3)	Mod (0.5)	Mod (0.5)
Recreation/Education Potential	Low (0.3)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.3)
Actual Points/ Possible Points	6.6 / 10	2.0 / 9	4.1 / 11	4.8 / 8	5.1 / 11	6.5 / 12	8.6 / 12
% of Possible Score Achieved	66%	22%	37%	60%	46%	54%	72%
Overall Category	II	III	III	П*	III	П*	II
Total Acreage of Assessed Wetlands within Easement	6.5 ac (estimated)	4.59 ac	4.8 ac (ES1)	7.22 ac	2.52 ac	4.8 ac	3.11 ac
Functional Units (acreage x actual points)	42.9 fu	9.18 fu	19.68 fu (ES1)	34.66 fu	12.85 fu	31.2 fu	26.75 fu
Net Acreage Gain	NA	NA	NA	2.63 ac	2.52 ac	0	0
Net Functional Unit Gain	NA	NA	NA	25.48 fu	12.85 fu	11.52 fu	Unknown
Total Functional Unit "Gain"	49.85 Total Functional U	Jnits; 38.33 at restoration	wetlands; 11.52 at enhanceme	nt wetlands (ES	only; ES2 could	l not be calculate	d)

¹ See completed MDT functional assessment forms in Appendix B for further detail. ²Production Export rating was corrected based on size of vegetated component in the AA and shown in bold; this resulted in site rating as Category III. * Did not achieve Category II rating based on functional points, but did achieve Category II rating based on 0.9 score for wildlife habitat.



4.0 REFERENCES

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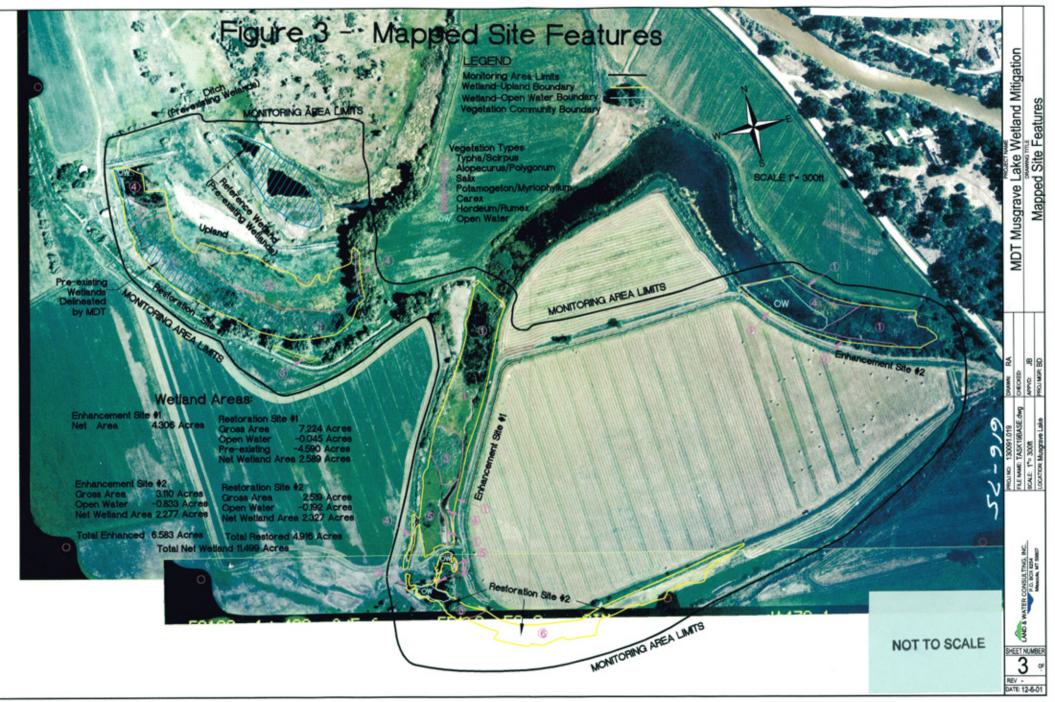
Appendix A

FIGURES 2 - 3

MDT Wetland Mitigation Monitoring Musgrave Lake Zurich, Montana







Appendix B

COMPLETED 2001 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2001 BIRD SURVEY FORMS
COMPLETED 2001 WETLAND DELINEATION FORMS
COMPLETED 2001 FIELD AND FULL FUNCTIONAL
ASSESSMENT FORMS

MDT Wetland Mitigation Monitoring Musgrave Lake Zurich, Montana



DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM
Project Name: Musque Lake Project Number: MH-STPX 3(33) Assessment Date: 7 1/6/71 01 Location: 5 of Zucich MDT District: Great Foll 5 Milepost: Legal description: T32A R21E Section 11/12 Time of Day: 7/30 nm 5/00 pm Weather Conditions: Sunny, calm Person(s) conducting the assessment: JB, RH Initial Evaluation Date: 51/5/01 Visit #: 2 Monitoring Year: 2001 Size of evaluation area: 160 acres Land use surrounding wetland: Hayland + Pasture. (easement)
HYDROLOGY
Surface Water Inundation: Present
Well # Depth Well # Depth Well # Depth
Additional Activities Checklist:
COMMENTS/PROBLEMS: Restoration Side #1: 1. inundation = 40; Ate. depth = 4-6"; Romse of depths = 0-3ft.
Restoration Site 12: "=10; "=6" j " = 0-5ft - vost majority of this site to east of ditch was not inundated although some stranded duck weed was observed indicating partial inundation earlier this year for approximately 300-400 feet cost of the dike. or Roman leassee stated that Standpipe, was own floring and 15 likely Set too low to achieve total inundation to east. Standpipe should probably be raised by at least 2 feet.

Enhances Site # 1: 1. Inundation = 15; Are depth = 24"; Range of dethis = 0-30" (ditch only

1. 11 = 0-6+

=60; H H = 12";

Enhance Sile#2: "

li.

COMPREHENSIVE VEGETATION LIST

in		
LAND	& WATER	B-2

Charies	Vacatation	Charies	Vacatation
Species	Vegetation	Species	Vegetation
	Community	- /	Community
TINIAT	Number(s)	Det to	Number(s)
TYPLAT	1,2,5	ROS NUT	Up
SCI ACU	1,2,5	RAN OCC American bugleward	11'
SCI AME	1,2,6	LYCAME 4	1
SCI VAL	1,2	FESARU	6
SCIMAR		POL HYD	1,2
CAR LAN	1,2,5	POL AMP	1,2
CAR VES	1,2.5	POA PRA	56,40
CAR VOL	1,2,5	POT ANS	1,2,5,6
CAR STI	1,2,5	ELE ANG	up 1
CAR UTR	1,2,5	PRU VIR	Úρ
CAR PRA	1,2,56	ACE NEG	ύρ ύρ
ELE PAL	1,2.5	COR STO	3
ELE ACI	1,4	POP DEL	up
ALO PRA	1,2,5	MED SAT	Up
Rum CRI	All	SIU SUA	1'
LEMMW	4	CIK DOU	1
SAG CUN	1,4	APO AND Spreading dogbane	ир
SAL LUT	3	HEL ANN	up
KAL EXI	3,1	koc sco kochia	UP
ALI PLA AQU	1	SPA EUr grant burreed	1
RA MAS	2,5,6	ARC MIN burdock	ир
HOR SUB	5,6	ASD OFF asparagus	Up
	1,2,5	PHA ARU	1,2
POL PRE POL ERE	10	GLY GRA	1,2
	2,3,5,6,40	SOL CAN Comada goldenrod	2,40
BEO INÉ	110	TAR OFF	2,40
CIE ARV	2,5,6	PHI PRA AL SPE GLYLEP	40,2
RUM CRI	All	ASC SPE	200.4
MYR SPI	4	GIYLEP	2,5,4
ATT NAT	4		10,01
TW EFF	1		
8EC 54Z	1,2 1,2,3,5 up		
AGR ALB	1,235		
SYM OCC	up'		
AGR REP BRO INE CIR ARV RUM CRI MYR SPI POT NAT JUN EFF BEC SYZ AGR ALB SYM OCC CHE ALB	6		

COMMENTS/PROBLEM	AS:		

VEGETATION COMMUNITIES Community No .: 1 Community Title (main species): Typha latitolia / Scirpus acutus Dominant Species % Cover Dominant Species % Cover Tupha latitolia 750 Scirpus acutus 21-50 Carex langinosa 21-50 Eleocharis palustris 6-10 COMMENTS/PROBLEMS: Community No .: 2 Community Title (main species): Alopecuras pratens / Polzgonum lapath tolkum Dominant Species % Cover Dominant Species % Cover Abpecuras pratensis 21-50 gonum lapathitalium 21-50 oppon repms 21-50 Rocharis palystris 6-10 Agrastis olla 1-5 COMMENTS/PROBLEMS: Community No.: 3 Community Title (main species): Salix exigua Dominant Species % Cover Dominant Species % Cover Sallx exigua 250 Corex lanushosa 21-50 Acrostis alba 11-20 Bromus hermis 6-10 COMMENTS/PROBLEMS:

Additional Activities Checklist:

Record and map vegetative communities on air photo

VECE	TATION	COMMI	INITIES



Community No.: 4	Community	Title (main	species):	Potamo	zeton,	Mu	riopho	Hum
					, ,	1	10	

% Cover	Dominant Species	% Cove
1-5		
750		
6-10		
6-10		
750		
(main species):	Carex	
% Cover	Dominant Species	% Cove
21-50		
21-50		
21-50		
	brdeum jubatum/Rumex cl	75pu 5
(main species):_	V	
(main species):	Dominant Species	% Cove
(main species):f	V	
(main species): //	Dominant Species	% Cove
(main species): <u>f</u> % Cover 750 21-50	Dominant Species	% Cove
(main species): // % Cover 750 21-50 1-5	Dominant Species	% Cove
(main species): <u>f</u> % Cover 750 21-50	Dominant Species	% Cove
(main species): <u>f</u> % Cover 750 21-50 1-5 6-10	Dominant Species Carex Ifesicaria	% Cove
(main species): <u>f</u> % Cover 750 21-50 1-5 6-10	Dominant Species	% Cove
(main species): <u>f</u> % Cover 750 21-50 1-5 6-10	Dominant Species Carex Ifesicaria	% Cove
(main species): <u>f</u> % Cover 750 21-50 1-5 6-10	Dominant Species Carex Ifesicaria	% Cove
(main species): <u>f</u> % Cover 750 21-50 1-5 6-10	Dominant Species Carex Ifesicaria	% Cove
(main species): <u>f</u> % Cover 750 21-50 1-5 6-10	Dominant Species Carex Ifesicaria	% Cove
	/-5 750 6-/0 6-/0 750 (main species):	1-5



MDT WETLAND MONITO	ORING - VEGETATION TRANSECT
Site: Musgrave Lake Date: 7/16/01	Examiner: SB/RH Transect # Restoration Site #1
Approx. transect length: 500 feet Compass Dir	Examiner: SB/RH Transect # Restoration Site#1 ection from Start (Upland):
Vegetation type 1: Upland Length of transect in this type: 45 feet AGR REP 21-50 ALO PRA 6-10 APO AND 6-10 BRO INE 6-10 TAR OFF 21 PHL PRA 6-10 SYM OCL 1-5 POL LAP 6-10 LYC AME 1-5	Vegetation type 2: Alogecuras / Polygonum Length of transect in this type: 35 feet ALO PRA 750 TYP LAT 1-5 GLY GRA 11-20
Total Vegetative Cover: /00	Total Vegetative Cover: 100
Vegetation type 3: Typha Introlla Ischmodentus Length of transect in this type: 1/0 feet TYP LAT 750 SCI ACU 21-50 ALO PRA 11-20 POL LAP 6-10 CAR LAN 1-5	Vegetation type 4: Alopecus/Polygonum Length of transect in this type: 195 feet ALO PRA 750 AGRICAN GIO Veg Cover = 100/6 ELE PAL 1-5 Type 5: Upland Longth: 115ft
Total Vegetative Cover: /oo	Total Vegetative Cover: /00/0



MDT WETLAND MONITO	RING - VEGETATION TRANSECT
Site: Mysgrane Lake Date: 7-16-01	Examiner: JB/RH Transect # Enhancement Area # 1
Approx. transect length: 36 feet Compass Direct	ction from Start (Upland): E/SE 106°
Vegetation type 1: Upland Length of transect in this type: 18 feet PRU VIR 1-5 MED SAT 11-20 POL LAP 11-20	Vegetation type 2: Carex Length of transect in this type: GB feet CAR LAN 750 AGR ALB 750 ALO PRA 11-20 RUM CR 1 6-10 BEC 542 1-5 SL1 ACU 1-5 RAN OFF 21 POL LAP 21 CAR VES 21-50 HOR SUB 21
Total Vegetative Cover: /00 % Vegetation type 3:	Total Vegetative Cover: 100 Vegetation type 4:
Length of transect in this type: feet	Length of transect in this type: feet
Total Vegetative Cover:	Total Vegetative Cover:



MDT WETLAND MONITO	RING – VEGETATION TRANSECT
Site: Musgrave Lake Approx. transect length: 170 feet Date: 7-/6-0 Compass Direct	Examiner: SB/RH Transect # Restoration Sik#2
Vegetation type 1: Upland Length of transect in this type: 20 feet ACR REP 21-50 BRO INE 11-20 SHM OCC 11-20 CHE ALB 1-5 ROS NUT 1-5 CIR ARV 6-10	Vegetation type 2: Hordeum inbatum / Rumer Crisques Length of transect in this type: 80 feet HOR SUB 750 RUM CRI 750 AGR REP 21-50 RLA MAS 6-10 CHE ALB 6-10 POL ERE 1-5 FES So, 1-5 POA PRA 1-5 CIR ARV 1-5
Total Vegetative Cover: 100	Total Vegetative Cover: 100
Vegetation type 3: Upland Length of transect in this type: 70 feet BRO INE 1/20 AGR PEP 21-50 FOL LAP 1/-20 SYM OCC 21-50 RUM CRI 1-5 ROS NUT 1-5 FOA HEA 1-5 FAR LAN < 1	Vegetation type 4: Length of transect in this type: feet
Total Vegetative Cover: /00	Total Vegetative Cover:



MDT WETLAND MONITO	ORING - VEGETATION TRANSECT
Site: Musamme Lake Date: 7-17-0	rection from Start (Upland): 20° N/NW
Approx. transect length: 137 feet Compass Dir	rection from Start (Upland): 20° W/WW
Vegetation type 1: Upland Length of transect in this type: 7 feet PLU VIL 750 ACE NEG 750 COR STO 6-10 ARC MIN 6-10	Vegetation type 2: Typha latitolia Length of transect in this type: 18 feet TYP LAT 750 CAR LITE 6-10 100% regetated Type 3: Carex Length: 10 feet CAR UTR 750 BEC 592 1-5 SIU SUA 1-5 TYP LAT 6-10 POL PRE 6-10
Total Vegetative Cover: 100 Vegetation type X:4 Typha lastitude Length of transect in this type: 53 feet TYPLAT 750 CARUES 11-20 POL LAP 6-10 AGRALB 1-5 GEL SYZ 1-5 100% Vegetated	Total Vegetative Cover: 100 Vegetation type X 6 Upland Length of transect in this type: 38 feet BLO INE 21-50 SYN XC 11-20 GLY LEP 21 SAC EX 1 21-50 SOL CAN 750
Type 5: Solix exigna Length: 11 feet SALEXI 1-20 TYPLAT 21-50 CARVUL G-10 CARVUL G-10 ASC SAE G-10 SOL CAW < 1 Total Vegetative Cover: 100	PRU VIR 1-5 ACE NEG 1-5 CAR VES 21 AGR REP 21 Total Vegetative Cover: \(\lambda O \rightarrow \)



MDT WETLAND MONITORING - VEGETATION TRANSECT (back of form)

Cover Estimate	Indicator Class:	Source:
+ = <1% 3 = 11-20%	+ = Obligate	P = Planted
1 = 1-5% $4 = 21-50%$	 - = Facultative/Wet 	$V = Volunteer$ $P_{11} + 1 : 70\%$
2 = 6-10% 5 = >50%	0 = Facultative	V = Volunteer
Percent of perimeter 5ee % deve	eloping wetland vegetation - exclud	ling dam/berm structures. Enh.#1:90 % Enh.#2:90 %
Establish transects perpendicular to the shore this location with a standard metal fencepost	eline (or saturated perimeter). The Extend the imaginary transect lin	transect should begin in the upland area. Permanently mark e towards the center of the wetland, ending at the 3 food depth Mark this location with another metal fencepost.
		um, establish a transect at the windward and leeward sides of entory, representative portions of the wetland site.
Notes:		
	,	

PLANTED WOODY VEGETATION SURVIVAL AND & WATER B-10



Species	Number Originally Planted	Number Observed	Mortality Causes
MA No species planted			
COMMENTS/PROBLEMS:			
-			

WETLAND DELINEATION LAND & WATER B-11
At each site conduct the items on the checklist below: Delineate wetlands according to the 1987 Army Corps manual.
Delineate wetland-upland boundary on the air photo
Survey wetland-upland boundary with a resource grade GPS survey
COMMENTS/PROBLEMS: Forms Attached
FUNCTIONAL ASSESSMENT
Collect information to complete MDT Function and Values Assessment in the office.
Leff is completing this section
Jeff is completing this section
COMMENTS/PROBLEMS: Forms Attached
COMMENTS/PROBLEMS: 70/m5 HIJOURA
Were man-made nesting structures installed at this site? YES NO_X
If yes, do they need to be repaired? YES NO_WA
If yes, describe problems below and indicate if any actions were taken to remedy the problems.
Were man-made structures build or installed to impound water or control water flow into or out of the wetland?
YES X NO
If yes, are the structures working properly and in good working order? YES X NO X
If no, describe the problems below.
COMMENTS/PROBLEMS: Dikes in Good shape but standpipe on Restoration
Site #2 Set too low. Area does not inundate; Hater Was
de raised by about 2 feet according to lessee.



BIRD SUMMARY TABLE

Site: Musgrare Lake

Page / of / Date: 5/15/01 Survey Time: 8/30_{AM} - 1:00_{PM}

Scientific Name	Common Name	Total Density		Nesting	Flyover	Breeding	Loafing
	Pheasant	2	X				
	red-Wins blackbird			X			
	Canada 0,005e	6	X				,
	Robin	Sel	8				
	Bain Swallow	Sev	~			77742	
	Killder	2-3	*				
	Parch-1 Une Schiller	Sel	×				
	Readowlack	2	~				
	Orange rouned	gilan	_				
	Llarble (2.		X	,		
	Harrier	T	/		/		,
	Cowbird.	1	^_				/
	E the blad	Sev	×.				-
	E. Kingbird	Jev	Х,	-			2
	B.W. Teal	5		-			
	D.W. real	1					5
	Clan-colored sparrow						X
	Willit	1.					
	bobolink	-	×		/		
	ring-billed gall	2	× -		_X		
	Marbled godwit	ļ.,	×		1/		
	Red-tailed Hank	1			Χ		
	American Costrel	2	X				
			_				
					 	1	
		-					-
	-				-	-	
						-	-
			1				



BIRD SUMMARY TABLE

site: Musgrave Lake

Page | of | Date: 7/16/01 , 7/17/01 Survey Time: 7/30am - S!OPPM

Scientific Name	Common Name	Total Density	Foraging	Nesting	Flyover	Breeding	Loafing
	morsh Wen	num.		X	X		X
	rockdove	sev.		X			×
	mailard	sev.	X	X		X	X
	Common Snipe		X	X	X	X	X
	reduling blockband	num.	X	x	×.	>	X
	Brewer & blackbird	num.	X	X	X	X	X
	41/04- head blackbird	5eV.	X	X		X	X
	Killdee (num.	X.	X			× .
	Willet		X				X
	ring nack pheasant	sev.	X	X			
	Cedar Horning	401	×				
	woland Gordniaer	1					X
	Starling	. /			X		
	brown needed constitute	501.	X		X		
	nighthawk Sara	1	X				
	Sora	Se.l.	X	X			X
	mouning dore	sev.	2000 1000		X		
	Sported Sondpiper	num.	X	X	X		X
	Solitory Sandplace	num.	V	V	V		×
	American robin	Sev.	X		X		
	ham Swallow	Sel	X			1000	
	American Kestrel	2	X				X
	Eastern Kingblod	5011	×				
	Bullacksoriole		191 - 1	10 10 10			X
	Yellow Worbler	1					X
	ring-bited anll	1	×		Server serve		V5 /559 1000
	Clay-colored sporrar	1	X				
	10						
	1						
							1000
					1 199 1994		1200
	1						
			<u> </u>				
	 						

LAND & WATER B-14

PHOTOGRAPHS

Using a camera with a 50 mm lenses and color film take photographs of the following permanent reference points listed in the checklist below. Record the direction of the photograph using a compass. (The first time at each site establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3' above ground, survey the location with a resource grade GPS and mark the location on the air photo.) Checklist:

\times	One photo for each of the 4 cardinal directions surrounding wetland
\times	At least one photo showing upland use surrounding wetland - if more than one
	upland use exists take additional photos
X	At least one photo showing buffer surrounding wetland
	One photo from each end of vegetation transect showing transect

Location	Photo	Photograph Description	Compass
	Frame #		Reading
A	24	Start transact Rost #1	N/NE 10°
В	25	End 11 11 11	\$/5W 192 °
С	(26	photo point 7 , Rest#1 NW corner	S 186°
D	327	IL IL II IL II	SE 143°
Е	(28	R H II IV II	E/SE 104°
F	29	M.I. #1, Rest, #1	
G	(30	photo pt 6 Rusti #1 SE corner	W/SN 250
Н	\$31	photopt 6, 11 11	WW 3100
	(.32	11 11 n . 11 11	N. 14°

190/ Rest 51k2 tronsect SFOD SISE No 7 / transect as 0#1 @ NE 60°/ PP#3 @ NE 54° / PP#2 @ @ #8 comos HeraTID2 105° Enhancesta / transa

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points with the GPS unit set at 5 second recording rate. Record file numbers fore site in designated GPS field notebook
Checklist:
Jurisdictional wetland boundary 4-6 landmarks recognizable on the air photo Start and end points of vegetation transect(s) Photo reference points Groundwater monitoring well locations
COMMENTS/PROBLEMS:

WILDLIFE

					BIRDS					
Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migratin	S	pecies	Number Observed	Nesting or Breeding Activity	Likely Breedin Residen	g Migrating
See bird -	Midt									
						-				
						-				
								1997		
					-					
					-					
					-					
	-				-					
			L		ш_				L	
Were man mad structures being	g utilized?	Yes	No	Do the	nesting struc	ctures need	repairs?	/es	No	-
	Spec	ioe	IVAZNIV	IIVIZALA	Number	TILES	Indirect	indication	of use	
	Spec	ics			Observed	Tracks	Scat		rows	Other
Plans garte	ir snok.	0		_	7	71110110		- Duit		
		rog		_	20+					
White-tailed	, ,	109			3-5					
Jone- toche	1 Weak	01			1					
heaver	240430				-					Dams
rauson						X				
Richardson's	around	SOMICIA	el		/					
7	1	7								
COMMENTS	vertebrate s	sampling	(if require	ed) d La	55 Com	nonly o	bserve	d at	each	2
									101102100	
		-								

IGM Class (CIRCLE)	Cowardin Class	Est. % of AA	Predominant Water	r Regime (CIRCLE)		
fineral Soil Flats	Emergent	90%	Perm Flood Int Ex	p Sem Perm Flood	Sças Flood Sat	Tem Flood Int Flood
rganic Soil Flats iverine (nonperennial)	Aquatic Bed	5%	Perm Flood Int Ex	Sem Perm Flood	Seas Flood Sat	Tem Flood Int Flood
iverine (upper perennial)	MOSS-LICHER		Perm Flood Int Ex	p Sem Perm Flood	Seas Flood Sat	Tem Flood Int Flood
iverine (lower perennial) acustrine Fringe	Scrub-Shrub		Perm Flood Int Ex	p Sem Perm Flood	Seas Flood Sat	Tem Flood Int Flood
epression (closed)		-				
epression (open, roundwater)	Forested		Perm Flood Int Ex	p Sem Perm Flood	Seas Flood Sat	Tem Flood Int Floor
pepression (open, surface	Unconsolidated Bottom ON	25%	Perm Flood Int Ex	Perm Flood	Seas Flood Sat	Tem Flood Int Floor
lope	Other:		Perm Flood Int Ex	p Sem Perm Flood	Seas Flood Sat	Tem Flood Int Floor
rganic Soil Flats	Total Estimated % Vegetated	95			75	
Longest duration of su					ration and other attr	1
at any wetlands within	M			Perm / Peren	Seas / Intermit	Temp / Ephem
in at least 10% of AA (t	oth wetlands and nonwetlands [deepwa	iter, streambe	ed]	Perm / Peren	Seas / Intermit	Temp / Ephem
Where fish are or histor	cally were present (circle NA) if not ap	plicable)	7	Perm / Peren	Seas / Intermit	Temp / Ephem
% of wa	terbody containing cover objects			>25%	10-25%	<10%
% bank	or shore with riparian or wetland shrub	or forested c	communities	>75%	50-74%	<50%
adjacent to poled wetla action (circle NA i not	nd vegetation along a defined watercou applicable)	rse or shoreli	ine subject to wave	Perm / Peren	Seas / Intermit	Temp / Ephem
% cover	of wetland bank or shore by sp. with b	inding rootm	asses	>65%	35-64%	<35%
Estimated w Estimated % Evidence of groundw	any wetlands on site flood as a result and area subject to periodic flood of flooded wetland classified SS, Fater discharge or recharge	ling (acres):		≥10 2-10 ≥75 25-74	o, go to groundwater <2 <25	r* section below)
AA is Documented Primary or critical	posed Threatened, Endangered, or (D) or Suspected (S) to contain (c) habitat (list species) D S (list species) D S (sist specie			in instructions): D S MNH	P: black-nucker	tstilt, yellav black te ter, num. sho
Incidental habitat (No usable habitat Wildlife observations?	Vone					
Incidental habitat (No usable habitat Wildlife observations? ish observations?	Vone					
Incidental habitat (No usable habitat wildlife observations? ish observations? OTHERS No wetlands have pote	ntial to receive excess sediments, n	utrients, or	toxicants? Y (N From:	On TMDL List?	Y (N)

HGM Class (CIRCLE) Cowardin Class Est. % Predominant Water Regime (CIRCLE) of AA Mineral Soil Flats Emergent Perm Flood Int Exp Sem Perm Flood (Seas Flood Tem Flood Int Flood Organic Soil Flats 10% Aquatic Bed Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Riverine (nonperennial) Riverine (upper perennial) Moss-Lichen Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Riverine (lower perennial) Lacustrine Fringe Scrub-Shrub Perm Flood Sem Perm Flood Int Exp Seas Flood Sat Tem Flood Int Flood Depression (closed) Forested Perm Flood Int Exp Sat Int Flood Depression (open, groundwater) Sem Perm Flood Seas Flood Tem Flood Unconsolidated Bottom Depression (open, surface water) Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Other: Perm Flood Int Exp Sem Perm Flood Seas Flood Sat Tem Flood Int Flood Slope Organic Soil Flats Total Estimated % Vegetated RELATIVE ABUNDANCE: rare com. DISTURBANCE is: abun. High Moderate Low HYDROLOGY: Max. acre-ft surf. water at wetlands in AA subject to inundation: <1 >5 (if no flooding/ponding, go to groundwater* section) If outlet present, is it restricted (subsurface will always be "yes" 2 Y. Does AA contain surface or subsurface outlet? Longest duration of surface water: Surface Water Duration and other attributes (circle) at any wetlands within AA Perm / Peren Seas / Intermit Temp / Ephem in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...] Perm / Peren Seas / Intermit Temp / Ephem Seas / Intermit Perm / Peren Temp / Ephem Where fish are or historically were present (circle NA if not applicable) % of waterbody containing cover objects >25% 10-25% <10% % bank or shore with riparian or wetland shrub or forested communities >75% 50-74% <50% adjacent to rooted wetland vegetation along a defined watercourse or shoreline subject to wave Perm / Peren Seas / Intermit Temp / Ephem action (circle NA if not applicable) % cover of wetland bank or shore by sp. with binding rootmasses >65% 35-64% <35% (if no, go to groundwater* section below) Flood Attenuation: Do any wetlands on site flood as a result of in-channel or overbank flow? Y Estimated wetland area subject to periodic flooding (acres): >10 Estimated % of flooded wetland classified SS, FO or both: ≥75 25-74 <25 *Evidence of groundwater discharge or recharge? HABITAT Habitat for Listed or Proposed Threatened, Endangered, or Montana Natural Heritage Program S1, S2, or S3 Plants or Animals: AA is Documented (D) or Suspected (S) to contain (circle based on definitions contained in instructions): Primary or critical habitat (list species) T/E: D S Secondary habitat (list species) Incidental habitat (list species) D ralloon. Wildlife observations? Fish observations? 3/4 OTHERS Do wetlands have potential to receive excess sediments, nutrients, or toxicants? Potential to receive low to moderate levels high levels Does site contain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" or "S2" plant association? Is AA a known recreation / education site? Y Does AA offer strong potential for use as recreation / education site?

Site: Musgrave Lake

Brief Description: Enhancemen

Field Data Sheet for 1999 MDT Wetland Assessment Form

Estimated AA Size (Circle Ac.): <1 (1-5) >5

ineral Soil Flats ganic Soil Flats verine (nonperer verine (upper pe verine (lower pe custrine Fringe pression (closed	(Water 1					
ganic Soil Flats verine (nonperer verine (upper pe verine (lower pe custrine Fringe epression (closed	(ofAA							
verine (nonperer verine (upper pe verine (lower pe custrine Fringe pression (closed		Emergent	50%	Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
verine (lower pe custrine Fringe pression (closed	inial)	Aquatic Bed	20%	Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
custrine Fringe pression (closed		Moss-Lichen		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
_	rennar)	Scrub-Shrub	5%	Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
		Forested		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
pression (open, oundwater)		Unconsolidated Bottom	25%	Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
pression (open, ter)	surface	Other:	00/		Int Exp	Sem Perm Flood	4 1	Sat	Tem Flood	Int Flood
ope ganic Soil Flats			-	Perm Plood	ик Ехр	Sell Felli Floor	Seas Flood	oat	1em riood	Int Flood
		Total Estimated % Vegetated	,					_		
LATIVE A	BUNDAN	CE: rare com. abun.	DISTU	RBANCE is:		High Moderat	· (1	Low		
DROLOGY	': Max. ac	re-ft surf. water at wetlands in	AA subject to	inundation: <	1 1-5	(>5)(if no flood	line/pondine	. 20 to	groundwat	er* sectio
										١. ٠٠٠٠
es AA contair	n surface o	or subsurface outlet?	N	If outlet prese	ent, is it	restricted (subsurfa	ace will alwa	ys be	"yes")(Y	N
ongest durati	on of surfa	ce water:				Surface Water Dur	ation and oth	ner att	ributes (circ	le)
t any wetlands	within AA				4	Perm / Peren	Seas / Inter	mit	Temp / 1	Ephem
n at least 10% o	f AA (both	wetlands and nonwetlands [deepwa	ater, streambed	i]	7	Perm / Peren	Seas / Inter	mit	Temp/	Ephem
Where fish are o	r historicall	y were present (circle NA if not ap	plicable)		-	Perm / Peren	Seas / Inter	mit	Temp/	Ephem
	% of waterb	ody containing cover objects				>25%	10-25%		<10%	
	% bank or s	hore with riparian or wetland shrul	or forested co	mmunities	\neg	>75%	50-74%)	<50%	
adjacent to roote		regetation along a defined watercon	arse or shorelin	e subject to wave	. <	Perm / Peren	Seas / Inter	mit	Temp/	Ephem
	% cover of	wetland bank or shore by sp. with b	oinding rootma	sses	7	>65%	35-64%		<35%	
(25.05)(580)(584)						$\overline{}$				
		wetlands on site flood as a rest and area subject to periodic floor		nel or overbank		Y N Of no ≥10 2-10	, go to grour	ıdwat∈ <2	er* section b	elow)
		flooded wetland classified SS, I		_		≥75 25-74		<25		
Evidence of gr	oundwater	discharge or recharge (Y)	N	List: DIS	char	ge				
ABITAT						,				
abitat for Listed		sed Threatened, Endangered, or					ts or Animals	:		
) or Suspected (S) to contain (c itat (list species) D S	ircle based or T/E:	n definitions cor	ntained i	in instructions): D & MNHi	p.			
Secondary		t species) D S	T/E:				Black	em.	black-ne	chd 5ti
Incidental h	abitat (list			old eagle		D S MNHI		-,		
No usable l ildlife observa	4.0	Men Lemond for	LE TIE:	coul 15:	3/54	DS MNHI	Sone	1100	15+901	ne tra
sh observation		e 005	75 00 2			1,747.2.	200			
THERS						1	. 11 1	11	- 61	
		ll to receive excess sediments, r	nutrients, or to	oxicants? Y)	N From: HS/10	On TMDI	List?	ON KIND	arozi
		, warm springs, >80 year-old fo	prested watte		'S1" or	"S2" plant accordat	ion?	v	(N)	

HGM Class (CIRCLE) Cowardin Class Est. % Predominant Water Regime (CIRCLE) of AA 90 Mineral Soil Flats Emergent Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Sat Organic Soil Flats Aquatic Bed Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Riverine (nonperennial) Riverine (upper perennial) Moss-Lichen Perm Flood Int Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Riverine (lower perennial) Scrub-Shrub Perm Flood Seas Flood Tem Flood Int Flood Lacustrine Fringe Int Exp Sem Perm Flood Depression (closed) Forested Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Depression (open, groundwater) Unconsolidated Bottom Sem Perm Flood Perm Flood Int Exp Seas Flood Sat Tem Flood Int Flood Depression (open, surface water) Other: Perm Flood Int Exp Sem Perm Flood Seas Flood Tem Flood Int Flood Slope Organic Soil Flats Total Estimated % Vegetated DISTURBANCE is: RELATIVE ABUNDANCE: rare (com/ High Moderate abun. Low HYDROLOGY: Max. acre-ft surf. water at wetlands in AA subject to inundation (<1 >5 (if no flooding/ponding, go to groundwater* section) If outlet present, is it restricted (subsurface will always be "yes" Y Does AA contain surface or subsurface outlet? Longest duration of surface water: Surface Water Duration and other attributes (circle) Seas / Intermit at any wetlands within AA Perm / Peren Temp / Ephem in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...] Perm / Peren Seas / Intermit Temp / Ephem Temp / Ephem Perm / Peren Seas / Intermit Where fish are or historically were present (circle NA if not applicable) >25% 10-25% <10% % of waterbody containing cover objects >75% % bank or shore with riparian or wetland shrub or forested communities 50-74% <50% adjacent to rected wetland vegetation along a defined watercourse or shoreline subject to wave Perm / Peren Seas / Intermit Temp / Ephem action (circle NA if not applicable) >65% 35-64% <35% % cover of wetland bank or shore by sp. with binding rootmasses (If no, go to groundwater* section below) Flood Attenuation: Do any wetlands on site flood as a result of in-channel or overbank flow? Y Estimated wetland area subject to periodic flooding (acres): <2 Estimated % of flooded wetland classified SS, FO or both: ≥75 25-74 <25 Evidence of groundwater discharge or recharge? HABITAT Habitat for Listed or Proposed Threatened, Endangered, or Montana Natural Heritage Program S1, S2, or S3 Plants or Animals: AA is Documented (D) or Suspected (S) to contain (circle based on definitions contained in instructions): D S MNHP: Primary or critical habitat (list species) D S T/E: D S MNHP Secondary habitat (list species) T/E D(S) MNHP: black-heled Incidental habitat (list species) T/E: MNHP No usable habitat Wildlife observations? 11. Leopos de Fish observations? Manage OTHERS Do wetlands have potential to receive excess sediments, nutrients, or toxicants? Potential to receive; low to moderate levels Does site contain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" or "S2" plant association? List: Y Is AA a known recreation / education site? Does AA offer strong potential for use as recreation / education site?

Brief Description:

Field Data Sheet for 1999 MDT Wetland Assessment Form

Estimated AA Size (Circle Ac.): <1 (1-5

(1987 COE Wetlands Delineation Manual)

Project/Site: Musgrave Leite Mitigator LppBcant/Owner: Montana Department of T investigators; Bergund / Harris		on	Project	No: #4421	County: 8	Aontana.	
oo Normal Circumstances exist on the site s the site significantly disturbed (Atypical S s the area a potential Problem Area? (If needed, eights on the reverse side)	Bustion:)?	*	Trans	munity ID: sect ID: Location: near upper	Emergent NA and Musgrive Lk		
EGETATION			gion No. 9)			_	
Jordant Plant Species(LathyCommon)			Plant Species()		en)	Stratum	
Typhe letifolie	Herb	OBL	Carex vesicaria			Smb	OBL
Cattall Broad-Leaf	-	-	Sedge, Infaled	7-1-1-		-	24.000
Scirpus sculus	Herb	OBL	Polygonum para	SICAVIE		Strub	FACW
Sulrush, Herd-Stem	-		Thumb, Lady's			-	FACW
Agrostis elbe	Herb	FACW	Rumex crispus			Strub	PACW
Redtop	-	0.51	Dock, Curty			-	24000
Selx exigue	Smb	OBL	Phelaris arundir			Smub	FACW
Milow Sendoer	-	-	Grass, Reed Car			-	A 81
Ayriophysium spicerum	SYLD	OBL	Deccharis palu			Shrip	OBL
Weler-Mittal, Euresian	-	-	Spikerush, Crees			-	ÖĞL
	STUD	OBL	Segitaria cunea Arrow Head No			Shup	OBL
				anam .			_
feedowgress Reed	_	-	ALOR-LIEBO NO			_	
Meadowgrass Reed Beckmennie syzigechne	SYLD	OBL	ALON VIEW VIEW			_	
feadowgrass.Reed Beckmannia syzigachne	Smb	OBL					_
Mesdowgrass Reed Sectimannia syzigachne Soughgrass American	-						
Meadowgrass Reed Seckmannie syzigechne Boughgrass American Percent of Deminant Species that are OBL	-		PAC Neutral	13/13	- 100.00%		
Meadowgrass.Reed Sections by tipsothine Soughgrass.American Percent of Deminent Species that are OBL (excluding PAC) 13/13 = 100.00%	-			13/13	= 100.00% 13 = 1.31		
feadowgrase Reed Seckmannia systyschine Southgrase American Percent of Deminent Species that are OBL (excluding FAC-) 13/13 = 100.00% Remarks: YDROLOGY YES Recorded Data(Describe in Remark NO Stream, Lake or Tide Gauge YES Asrial Photographs	, FACW or	PAC:	PAC Neutral Numeric Ind Numeric Ind Numeric Ind Numeric Ind Ind Hydrology Primary Indicate YES hunda	t 13/13 lex: 17/	13 = 1.31		
Meadowgrass Reed Sectmannia systemican Percent of Deminant Species that are OBL (excluding PAC-) 13/13 = 100.00% Remarks: YDROLOGY YES Recorded Data(Describe in Remark NO Stream, Lake or Tide Gauge	, FACW or	PAC:	PAC Neutral Numeric Ind Numeric Ind Numeric Ind Numeric Ind Numeric Ind YES Number YES Sehres	: 13/13 lex: 17/ indicators one stad stad stad in Uppe	13 = 1.31		
Meadowgrase Reed Sectimation Systypechne Southgrase American Percent of Deminant Species that are OBL (excluding PAC-) 13/13 = 100.00% Remarks: YDROLOGY YES Recorded Data(Describe in Remark NO Stream, Lake or Tide Gauge YES Asrial Photographs	, FACW or	PAC:	PAC Neutral Numeric Ind Iand Hydrology I YES Trunds YES Seture NO Water	t: 13/13 tex: 17/ indicators ora dad ted in Uppe	13 = 1.31		
#eadowgrase.Reed Sechmania systyschine Southgrase.American Percent of Deminant Species that are OBL (excluding PAC-) 13/13 = 100.00% Remarks: YDROLOGY YES Recorded Data(Describe in Remark NO Stream, Lake or Tide Gauge YES Asrial Photographs NO Other	, FACW or	PAC:	PAC Neutral Numeric Ind Numeric Ind Numeric Ind Primary Indicat YES Indus NO Water NO Orth U NO Sedim YES Oralna	indicators ore stad ted in Uppe Marks hes ore Deposits or Pattern or Pattern	13 = 1.31		
feadowgrase Reed Seckmannia systyachne Soughgrase American Percent of Deminant Species that are OBL (excluding FAC-) 13/13 = 100.00% Remarks: YDROLOGY YES Recorded Data(Describe in Remark NO Stream, Lake or Tide Gauge YES Aarial Photographs NO Other NO No Recorded Data Field Observations Depth of Jurface Water	. FACW or	FAC:	PAC Neutral Numeric Ind Numeric Ind Numeric Ind Primary Indicate YES Seture NO Units LI NO Sedim YES Oralina Secondary Indica NO Oxidaz	i: 13/13 lex: 17/ lex: 17/ lex: 17/ lex: 17/ lexit 17/ l	r 12 Inches In Wedands	12 Inches	
POROLOGY YES Recorded Data(Describe in Remark NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data Field Observations	, FACW or	FAC:	PAC Neutral Numeric Ind Numeric Ind Numeric Ind YES hunda YES thurst NO Ordit U NO Sedim YES Oralna Secondary India NO Water- NO Water- NO Water-	i: 13/13 indicators ors ated ited in Uppe Marks hes ant Deposit ge Patierns callors ed Root Ch Stained Lei Soil Survey	r 12 inches In Wedands annels in Upper 1	12 Inches	



DATA FORM ROUTINE WETLAND

(1987 COE Wetlands Delineation Manual)

Applicant	lject/Site: Musgrave Lake NtSgaton Site plican/Dwner: Montane Department of Transportation estigators: Berglund / Hamis			Project No: 84421 Date: 17-Ai-2001 County: Baine State: Montane Plot ID: 4				
SOILS								
Map Symi	y (Subgroup):	and Phase): Drainage Class; Typic Ruvequer		0-2% Mapped Hydric Inclusion? Pield Observations Confirm Mapped Type? (**)				
Depth (inches)	Hortzon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrar	t Texture,	Concretions, Structure, etc		
10	0	2.573/2	7.5YR5/8	Many Promine	nt Sity day			
Remarks	NO Reduce		Colors	NO Organic Stre NO Listed on Lo NO Listed on Ne NO Other (Expla	aking in San cal Hydric Sc Sonal Hydric	olis List Solis List		
	DETERMINA							
Wetand H	ic Vegetation i lydrology Pres is Present?		No No	is the Sampling Point within the Wetland? (199) No				
Remarks: Enhanceme		upper and of Musg	rave Lake, Well-funct	looing wedland.				

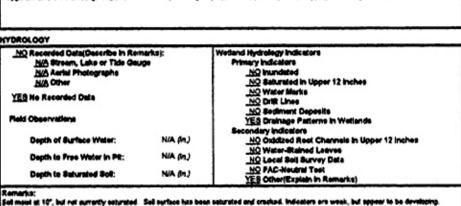
(1987 COE Wedands Delineation Manuel)

Project No: 84421

Oate: 16-A4-2001 County: Beine

Project/Sta: Magrave Lake Mitgation Site Applicant/Owner: Mortane Department of Transportation

Mey, For-Tell Quackgrass umex origque Harb FACW Polygonum arectum Herb F ook, Qurby Knotseed, Erect	FACU- FACU-
artey, Foo-Teil Umex orispue Herb FACW Polygonum erectum Knotweed, Erect Herb FAC Facture arundheces Fescue Kentucky Inntege major Herb FAC+	FACU-
umex orieque Herb FACW Polygonum ereclum Herb FACW (Curby Knotweed Erect Herb FAC Feature arundineces Herb FAC Feature arundineces Herb Faceus Kertiusky Herb FAC+	
ock,Curly Knotweed, Erect henopodium elbum Herb FAC Feature arundineces Herb cosefoot,White Feature Kertucky lantago major Herb FAC+	
heropodium album Herb FAC Festuce arundineces Herb loosefoot White Fescus Kerlucky lartego major Herb FAC+	ACU-
cosefoot White Fescus Kertucky lantago major Herb FAC+	FACU-
isnlege meter Herb FAC+	
ertain, Common	
proper of Demburit Species that are DSL. FACW or FAC: FAC Neutrit: 1/4 = 25.00%	
emarks:	-
	100
	_





DATA FORM **ROUTINE WETLAND**

Project/St									
Applicant	oject/Site: Musgrave Lake Mitigation Site apticant/Owner: Mortana Department of Transportation vestigators: Berglund / Hents				Project No	K 84421	County:	16-JU-2001 Beine Morters 3	
OLS									
Map Symb	oct 54 y (Subgroup)	e and Phase); Orainage Class; : Usic Torrifurer		m, salne		ed Hydric In rvations Cor		ed Type? 🧐	<u>э</u> н
Depth		Mottle			-				
(inches)	The state of the s		(Nursell Model)	Abundence					
10	•	2.573/2	10YR5%	Few	Fairt	Sity day los	in)		
	NO Builds	6 000		NO Org					
Week hydri	NO Aquic NO Reduc YES Glayer	Motsture Regime oing Conditions d or Lew Chroms	Cotors	NO List	ed on Local ed on Natio	Hydric Solis nai Hydric So n Remarks)	List		
WETLAND	NO Aquic NO Reduc YES Gleyes	Moisture Regime oing Conditions d or Lew Chrome in.		NO Clerk	ed on Local ed on Natio er (Explain i	Hydric Solis nai Hydric So n Romarks)	Lief de Lief		
West hydri	NO Aquic NO Reduc YES Glayer	Motsture Regime ting Conditions d or Lew Chrome in. LATION Present? (*o.) No	NO Clerk	ed on Local ed on Natio er (Explain i	Hydric Solls nai Hydric So	Lief de Lief	€00 No	

(1987 COE Wetlands Delineation Manual)

Project/Site: Allegrave Lake Mitigation Applicant/Owner: Mortane Department of I Investigators: Berglund / Hamis		on .	Project No: 84421 Date: 16-JU County: Brain State: Mont Plot ID: 2	
Oe Hormal Circumstances sidst on the site is the site significantly disburbed (Alypical I is the area a potential Problem Area? (If needed, explain on the reverse side)	Htuation:)?	Ý	es) No Community ID: Emergert cs No Transect ID: NA es No Paid Location: 3. end ES1, N of dike & W of main dic	<u> </u>
VEGETATION			gion No. 8)	
Dominant Plant Species(Latin/Common)				erb FACY
Poe pretensie	Herb	FACU-	Rumex crispus H Dock Curty	מטאין פוש
Buegrese,Kerbucky	Herb	FACU		- 108L
Agropyron repene Queckgrass	- 100	1	Sloughgress American	-
Carex vulninoides	Herb	OBL		erb FACW
Sedge Fox	٦,,,,		Redoo	
Hordeum Jubelum	Herb	FAC+		erb FACV
Barley,Fon-Tall	٦		Foxial Mesdow	
Typhe letitule	Herb	OBL	Polygonum hydropiper H	erb OBL
Cettali, Broad-Leaf			Smartweed,Marshpepper	
Scirpus eculus	Herb	OBL	Chenopodium album	arb FAC
Bulrush, Hard-Stem			Goosefoot, White	
	_	1		
	-			
Percent of Dominant Species that are OBL (excluding PAC-) 10/12 = 83.33% Remarks:	, FACW or	FAC:	FAC Neutral: 6/10 = 90 00% Numeric Index: 25/12 = 2 08	
HYDROLOGY YES Recorded Data(Describe in Remark	et	Wes	Sand Hydrology Indicators	
NO Stream, Lake or Tide Geuge YES Aeriel Photographs NO Other			Primary indicators NQ inundated NQ Seturated in Upper 12 Inches NQ Water Marks	
NO No Recorded Data			NO Sedment Deposits	
Field Observations			YES Drainage Patterne in Wetlands Secondary Indicators	
Depth of Surface Water:	None (m.)	1	NO Oxidized Root Channels in Upper 12 in	ches
Depth to Free Water in Pit:	> 14 pn.)		NO Water-Stained Leaves NO Local Soll Survey Data	
Depth to Saturated Soll:	> 14 (m.)		YES FAC-Houtral Tool NO Other Facilities by Remarks)	



DATA FORM ROUTINE WETLAND

Project/SI Applicant/ Investigat	Owner: Mo	agreve Lake Misge reans Department rgund / Harris		Projec	t Mo; #4421	Date: 16-JJ-2001 County: Beine State: Montane Plot ID: 2
Nap Symt	oot: 129 y (Subgroup	s and Phasek Drainage Class: k: Typic Ruvaque			apped Hydric i bservations Co	inchasion? online Mapped Type? (6) No
Depth		Matrix Color	Mottle Color	Mottle		Annual Control of the
(Inches)			(Munsell Moist) 7 5YR5/8	Abundance/Contre Common Fain		Concretions, Structure, etc
Remarks	NO Reduc	Moisture Regime sing Conditions d or Low Chroma	Colors	NO Disted on Li NO Disted on N NO Other (Expl	ational Hydric 8	Solls List
	DETERMIN		No	is the Sampling Pol	d within the Min	end to
Weterd H	ydrology Pre is Present?			is the sample of		tend? (e) No
Remarks: Erhansene		th and. Sta thely sa	turates to surface wh	en weter is up.		

Remarks: Likely sub-integating from adjacent ditch. Wetland signature on serial photo.

(1987 COE Wetlands Delineation Manual)

Project/Site: Musgrave Laice Mitigal toppicant/Owner; Montana Department of investigators: Berglund / Herris		on .		reject No: #4421	County: Bid State: Mc Plot ID: 1		
to Normal Circumstances exist on the s s the site significantly disturbed (Alypics s the area a potential Problem Area? (If needed, aspisin on the reverse side) Studen:)?	Ý	88	Pleid Location: RS-1, west harf of s	A		
EGETATION			egion No. 1				
Deminant Plant Species(Latin/Commen)				edies (Latin/Common	·		indicate
yphe letifolie	Herb	OBL	Agropyror			Herb	FACU
Jeffeli, Broad-Leaf		F1 W 11	Queckgre				OBL
Vopecurus pretensis	Herb	FACW	Smartwee	m amphibium		Harb	OBL
ossii Mesdow	Herb	OBL		ed vrecer		Herb	OEL
Schoue sculue Linah Hard-Stem		OBL		Creeping		1	-
Later, Na O-Stein		_	-			-	
	-	1	-			1	
			 				
		ı				1	
			_			_	_
	_					1	
						_	_
	_	ı				1	
			_				_
	_					1	,
Percent of Deminant Species that are Of (exchading FAC-) 5/8 = 63.33%	BL, FACW or	FAC:		foutrat: 5/6 = 0 ric Index: 10/8	13.33% = 1.67		
Remarks: Destructs NYDROLOGY							
NO Recorded Data(Describe in Rem	erks):	We	land Hydr	slegy Indicators		-	
HAS Streen, Lake or Tide Gaug			Primary is				
NA Aeriel Photographs				nundated			
THY COM				Beturaled in Upper 1	2 Inches		
YES No Recorded Data			NO C	Water Marks Drift Lines Sediment Deposits			
Meld Observations			-10	seament Deposits Drainage Patterns in ry Indicators	Wetlands		
Depth of Surface Water:	= 3 (in)		NO C	Oxidized Root Chery		Inches	
Depth to Free Water in Pit:	NA (n)			Water-Stained Leave Local Soil Survey De			
Depth to Schurated Soft:	NA (h)		YES	FAC-Houtral Tool Other(Explain in Ren			



DATA FORM ROUTINE WETLAND

(1987 COE Wetlands Delineation Manual)

investigal		ortana Department inglund / Harris	of Transportation				State: Plot ID:	Mortere
Map Dymi	bet 129	e and Phase); Drainage Class; o); Typic Planager		0-2%		ed Hydric Inc		nd Type? (FB)
Profile De-		Matrix Color	Mottle Color	Mot	te te			Structure, etc
(Inches)	morazon	(Munsel Molet) 2.5Y4/2	(Munsel Motet) 10YRS/6	Common	Distinct	Sity day	increasorie,	aratire, es
10	-	2.5742	10YRS/8	Common	Distinct	Sifty day		
	de oder. Se		center of site at novil			n Remarks)		
Hydrophyl Wetend H	DETERMI Is Vagatation lydrology Project?	n Prosent? (fee	No No No	is the Semp	ing Point w	Pin the Well	and? (No No
Tyons ou								



MDT I. Project Name: <u>Musgrark</u>	Montana We	tland A	\SSES _ 2, Pro	ssment Joct #: <u>// /</u>	Form (revise - 57PX 3 (sed 5/2	5/1999) Control #:_	4421	
3. Evaluation Date: Mo. 7 Day	16 Yr. 01 4. E	valuator(s	s):_5!	B/RH	5 . Wet	lands/Site	#(s) Restora	tion#1	
5. Wetland Location(s): i, Legal: T II. Approx. Stationing or Mile	32(Nor S; R 21 posts: NA	_@x w;	s		;TN	or S; R	_E or W; S		:
iii. Watershed: 1005 Other Location Information: SE of Zurich, S of N 7. a. Evaluating Agency: MDT	0004 GPS	Reference	Cour	fapplies):_	-				
7. a. Evaluating Agency: MDT b. Purpose of Evaluation: 1. Wetlands potentially affice 2. Mitigation wetlands; pre 3. Mitigation wetlands; por 4. Other	ected by MDT project construction	t 9. A	ssessm	sizo: (total a nent area: (A ions on deter	— ≠ − 2 A, tot., ac.,	(visu (mea	ally estimated) sured, e.g. by GF(visually estin(measured, e	nated)	
10. Classification of Wetland and	Aquatic Habitats in	n AA (HGN	M accord	ding to Brinse	on, first col.; USF	WS accordi	ng to Cowardin [1	979], remaini	ng cols.)
HGM Class	System		Subsy	stem	4	Class	Water Regime	Modifier	% of AA
Dep. (open, gw)	Palustrine		_	-		EM	SF	D	90%
, ji	11		_			AB	SPF	D	5 %
			_			+			-
11. Estimated relative abundance (Circle one) Unk Comments:	o: (of similarly classifi nown	ied sites wi Ran		same Major	Montana Watersh Common	ned Basin, s	ee definitions) Abunda	int	
12. General condition of AA: i. Regarding disturbance: (u	see matrix below to d	otomine fo	ircle) an	orooriata ree	nonse)				
Conditions within A		Commo	in Circly dip		nant conditions ac	djacent to (v	vithin 500 feet of)	AA	
		natural state logged, or o	e; is not g otherwise	edominantly razed, hayed, converted; is or buildings.	Land not cultivated, grazed or hayed or or has been subject contains few roads	selectively log t to minor clear	ged; subject to sub	d or heavily graze stantial fill placer drological alterati sity.	ment, grading.
AA occurs and is managed in predominantly or grazed, hayed, logged, or otherwise converted		low distu	rbance		fow disturbance	Ð	moderate d	isturbance	
roads or occupied buildings. AA not cultivated, but moderately grazed or hi logged; or has been subject to relatively mino	r clearing, fill	moderate	e disturb	ance	moderate distu	rbance	high disturt	oance	
placement, or hydrological alteration; contains AA cultivated or heavily grazed or logged; sub substantial fill placement, grading, clearing, o high road or building density.	eject to relatively	high dist	urbance		high disturband	ce	high disturt	pance	
Comments: (types of disturbation of the comments) Comments weedly, allen, 8	ance, intensity, seaso k Introduced specie	n, etc.): s (includir	ng thos	ng in 5	brounding	areas list) <u>CIR</u>	ARV		
Fite - Surrounding	summary of AA an	t gra	ding lan	nd use/hable	tat: Restora	tan si mash	k#1 in 1	VW CON	nr -
13. Structural Diversity: (based or	n number of "Coward	fin" vegeta	ted clas	ses present	(do not include un	vegetated o	lasses], see #10	above)	
# of "Cowardin" vegetated classes	s present in AA (see	#10)			ted classes (or s forested)	2 vegetat 1 if forest	ed classes (or led)	≤ 1 vegetate	d class
Rating (circle)				High		Moderate		Low	
Comments:									



SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

 Habitat for Federally AA is Documented (D Primary or critical hab Secondary habitat (Ilst Incidental habitat (Ilst No usable habitat) or Sustitat (IIst at speci	spected t speci les)	d (S) to	cont	reatene ain (circ D S D S D S D S	le one	based o	n de	efinitions	or Ani	mals: ined in i	nstru	uctions)	:	=					
II. Rating (use the concluthis function)	sions fr	rom i at	bove and	d the	matrix l	below t	o arrive	at [c	circle] th	e funct	ional po	ints	and rat	ing [H =	high, M	M = r	moderat	e, or L	= low] f	or
Highest Habitat Level		doc./p	rimary		sus/prin	nary	doc./	seco	ondary	sus	/second	dary	doc	:/incide	ental	sus	/incider	ntal	None	2
Functional Points and Re	ating	1 (H)			.9 (H)		.8 (M	1)(.7 (1	M)(N		.5 (L)		.3 (1	<u>,</u>		0 (L)	
Sources for documented u	se (e.g.	obsen	vations,	reco	rds, etc)):														
AA is Documented (Deprimary or critical hab Secondary habitat (list Incidental habitat (list No usable habitat Rating (use the concluthis function)	oitat (list st specie specie	t speci les) es)	les)		D S D S D S	No.	dhu	_	leepa	rd .	frog			-	= high, f	1 = M	moderat	e, or L	= low] f	or
Highest Habitat Level		doc./p	rimary		sus/prin	nary	doc./	seco	ondary	sus	./second	dary	dox	:/incide	ental	sus	/incider	ntal	None	9
Functional Points and Ra	ating	1 (H)			.8 (H)		(7 (N	(c)		.6 (M)		.2(L)		.1 (1) vea		0 (L)	
I. Evidence of overall wi Substantial (based on an observations of abundant wildlife sign presence of extremely interviews with local by the common occurrence of extremely observations of scatter common occurrence of extremely interviews with local by the common occurrence of extremely interviews with local by the common occurrence of extremely interviews with local by the common occurrence of extremely extremel	y of the dant wild a such a y limiting siologist of the forced wild of wildling and forced wild and wild	following the state of the stat	ng [cheos or high tracks, at featur knowled g [check oups or such as rees	ck]): spe nesi es n ge o]): indiv	ecies div t structu ot availa f the AA viduals o at, tracks	ersity (res, ga ble in t c r relati	during a ame trail the surre	any p	period) ic. ding area	ing pe	Low (fev littl sp: inte	base v or i e to arse ervie	ed on a no wildl no wild adjace	ny of the ife observing ife sign	ervation: nd food	s du	check]): ring pea ces h knowl	k use p		
ii. Wildlife habitat feature (L) rating. Structural diver of their percent compositio seasonal/intermittent; T/E Structural diversity (see #13) Class cover distribution	nsity is f	rom #1 AA (se	3. For one #10). ohemera	class Ab al; an	s cover to breviation	o be co	onsidere surface see inst	ed ev	venly dis er durat	tribute ons an	d, veget e as folk definitio	ated ows:	classe P/P =	s must perman	be withinent/per	n 20	% of ea	ich othe	er in ten	w ms
(all vegetated classes)		EVE												_						_
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E H	A M	P/P E	(S) (E)	T/E M	M	P/P E	S/I	T/E M	A
Low disturbance at AA (see #12i)	E	E	E	н	E	E	н	н	E	н	n	m	-	\odot	IVI	I M				
Moderate disturbance at AA (see #12i)	н	н	н	Н	н	н	н	М	н	н	М	М	н	М	М	L	н	М	L	L

III. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

М

м

м

Evidence of wildlife use (i)		Wildlife habitat feat	tures rating (ii)	
	Exceptional	High	Moderate	Low
Substantial)	1 (E)	C9 (H)	.8 (H)	.7 (M)
Moderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)

(see #12i)

High disturbance at AA

Rest #

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Perm	anent / Pere			onal / Intern		Temporary / Ephe		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10–25%	<10%	>25%	10–25%	<10%	>25%	10–25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	Н	н	Н	М	. М	М	М
Shading – 50 to 75% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	н	н	М	М	М	М	М	L	L
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	н	М	М	М	L	L	L	L	L

II. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or equation life support?

Y

N

Modified habitat quality rating = (circle)

E

H

M

L

III. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M =

moderate, or L = low] for this function)

Types of fish known or		Modified Hall	bitat Quality (ii)	
suspected within AA	Exceptional	High	Moderate	Low
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)
Non-game fish	.7 (M)	.6 (M)	.5 (M)	.3 (L)
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)

Comments:

14E, Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

function)

randon						The second secon			
Estimated wetland area in AA subject to periodic flooding		≥ 10 acres		<	:10, >2 acre	s		<2 acres	
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	.2(L)
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)

II. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Y N Comments:

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see

nstructions for further definitions of these terms].)

instructions for further definitions of these terms).)				_	_	_				
Estimated maximum acre feet of water contained in wetlands	,	5 acre fee	t	(<	5, >1 acre fe	xet)	1	≤1 acre foot		
within the AA that are subject to periodic flooding or ponding				9						
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	(S/I)	T/E	P/P	S/I	T/E	
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	(M)6.)	.5(M)	.4(M)	.3(L)	.2(L)	
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)	

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver low or comp substantiall	to moderate le counds such the y impaired. Mit s or toxicants,	wels of sedime nat other functi	ons are not ion, sources of	nutrients, or toxi use with pote nutrients, or o substantially in	IDEQ list of wate or "probable caus cants or AA rece ntial to deliver his ompounds such npaired. Major se cants, or signs o	es" related to eives or surrou gh levels of se that other fun- adimentation, s	sediment, unding land diments, ctions are sources of			
% cover of wetland vegetation in AA	>	70%	<	70%	≥ 70% < 70%						
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No			
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)			
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)			

Comments: 1/A

Rest#1

14H SedIment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L.

% Cover of wetland streambank or	Duratio	n of surface water adjacent to rooted ve	getation
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral
≥ 65%	1 (H)	.9 (H)	.7 (M)
35-64%	.7 (M)	.6 (M)	.5 (M)
< 35%	.3 (L)	.2 (L)	.1 (L)

Comments: NA

14I. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

T/E /A= temporary/ephemeral or absent (see instructions for further definitions of these terms).)

14J. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)

Α		Vegeta	ted comp	conent >	5 acres	•		Vegeta	ted comp	conent 1	5 acres			Vegeta	ated com	ponent <	1 acre	
В	Hi	gh	M∞de	erate	L	ow	Hi	igh	Mod	erate	Lo	w	Hi	gh	Mod	erate	Lo	w
С	Yes	No	(Yes)	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	(H8.)	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
A																		

Comments:

I. Discharge Indicators

Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/R present	(1(H))
No Discharge/Recharge indicators present	.1(L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

II. Recharge Indicators

Comments:

14K. Uniqueness:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Tunction.											
Replacement potential	AA contains f	en, bog, warm	springs or	AA does n	ot contain pro	eviously cited	AA does not contain previously				
	mature (>80 y	mature (>80 yr-old) forested wetland or			and structu	ral diversity	cited rare types or associations				
	plant associa	plant association listed as "S1" by the			high or cont	ains plant	and stru	uctural divers	sity (#13) is		
		MNHP		association I	isted as "S2"	by the MNHP	low-moderate				
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant		
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	(M) 4.	.3 (L)		
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)		
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)		

Comments:

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y_N (If yes, rate as [circle] High [1] and go to ii; if no go to iii) ii. Check categories that apply to the AA: ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y(N)

(If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

Iv. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Ownership		Disturbance at AA (#12i)										
	low	low moderate high										
public ownership	1 (H)	.5 (M)	.2.(L)									
private ownership	.7 (M) .3 (L) (.HC)											



FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	MOD	0.7	1	
C. General Wildlife Habitat	4164	0.9	1	
D. General Fish/Aquatic Habitat	NA	_	_	
E. Flood Attenuation	NA	-	-	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	NA	_	-	1.79
H. Sediment/Shoreline Stabilization	NA	_	_	
Production Export/Food Chain Support	HIGH	0.8	1	
J. Groundwater Discharge/Recharge	H16H	1	1	
K. Uniqueness	MoD	0.4	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		4.8	8	

60%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below) I III IV

	•
_ sc	y I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) ore of 1 functional point for Listed/Proposed Threatened or Endangered Species; or ore of 1 functional point for Uniqueness; or ore of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or tal actual functional points > 80% (round to nearest whole #) of total possible functional points.
	tal actual functional points > 60% (found to flearest whole #) of total possible functional points.
Category	I Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to
s	core of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or core of .9 or 1 functional point for General Wildlife Habitat; or
_	core of .9 or 1 functional point for General Fish/Aquatic Habitat; or
	ligh" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or
_ s	core of .9 functional point for Uniqueness; or
T	otal Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
Categor	/ III Wetland: (Criteria for Categories I, II or IV not satisfied)
	IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy
_	o to Category III)
	ow" rating for Uniqueness; and
	ow" rating for Production Export/Food Chain Support; and
T	otal actual functional points < 30% (round to nearest whole #) of total possible functional points



3, Evaluation Date: Mo. 7 Da				5.We	tlands/Site	#(s) Restorat	lin#a	
i. Wetland Location(s): I. Legal II. Approx. Stationing or M	: T 32 (Nor S; R 2 Illeposts: NA	_ © ∞w;s_ <u>l</u>	1,12	;TN	or \$; R	_E or W; S		:
III. Watershed: 100: Other Location Information SE of Zurich, S of	50004 GPS n: Milk River. B	S Reference N	lo. (if applies): _	_				
a. Evaluating Agency: MD b. Purpose of Evaluation: 1. Wetlands potentially a 2. Mitigation wetlands; p 3. Mitigation wetlands; p 4. Other	affected by MDT projectore-construction	8. Wetla	and size: (total a ssment area: (A ructions on deter	A, tot., ac.,		ally estimated) asured, e.g. by GP (visually estim (measured, e	nated)	
0. Classification of Wetland a	nd Aquatic Habitats I	n AA (HGM ac	cording to Brinso	on, first col.; USF	WS accord	ing to Cowardin [1	9791. remainir	ng cols.)
HGM Class	System		ubsystem		Class	Water Regime	Modifier	% of A
Riverine (non per.)	Palustrine		_		EM	SF	D	90
	11		-		SS	SF	D	5
	1)		~		ug	SPF	D	5
nergent Wetland (EM), Scrub-Shrub Wet 5, EM/ System: Riverine (R// Subsyst.: I termittently Exposed (G), Semipermanent	tland (SS), Forested Wetland Lower Perennial (2)/ Classes By Flooded (F), Seasonally Fi	(FO)/ System: Le RB, UB, AB, US, i looded (C), Saturate	custrine (LV, Subsys EM/ Subsystem: Up ed (B), Temporarily Fl	st.: Limnetic (2)/ Class per Perennial (3)/ Clas looded (A), Intermitten	es; RB, UB, A sses: RB, UB, itly Flooded (J)	B/ Subsystem: Littoral AB, US/ Water Regim Modifiers: Excavated	(4)/ Classes: Ri es: Permanently	, UB, AB, Flooded (H)
mergent Wetland (EM), Scrub-Shrub Wetl S, EM System: Riverine (R) Subsyst: I termittently Exposed (G), Semipermanent)), Partly Drained (PD), Farmed (F), Anfic 1. Estimated relative abundan- (Circle one) Ur Comments: 2. General condition of AA:	tland (SS), Forested Wetland Lower Perennial (2) Classes thy Flooded (F), Seasonally Fi cial (A) HGM Classes: River ICO: (of similarly classifi nknown	(FO)* System: Le : RB, UB, AB, US, iooded (C). Saturati ine, Depressional, ied sites within Rare	icustine (LV, Subsystem: Up EM Subsystem: Up ed (B), Temporarily Fi Slope, Mineral Soil Fi the same Major I	At: Limnetic (2)* Class per Perennial (3)* Class per Perennial (3)* Class icoded (A), Intermitten lats, Organic Soil Flats Montana Watersh	ses: RB, UB, A sses: RB, UB, ity Flooded (J) s, Lacustrine F	B/ Subsystem; Littoral AB, US/ Water Regim Modifiers: Excavated ringe	(4)/ Classes: Riles: Permanently (E), Impounded	, UB, AB, Flooded (H)
mergent Wetland (EM), Scrub-Shrub Wetl S, EM System: Riverine (RV Subsyst.: I termittently Exposed (G), Semipermanent o)), Partly Drained (PD), Farmed (F), Artific 1. Estimated relative abundanc (Circle one) Ur Comments:	tland (SS), Forested Wetland Lower Perennial (2)/ Classes thy Flooded (F), Seasonally Fi cial (A) HGM Classes: River ICO: (of similarly classifi nknown (use matrix below to de	(FO)* System: Le : RB, UB, AB, US, iooded (C). Saturati ine, Depressional, ied sites within Rare	coustine (LV, Subsystem: Up EM Subsystem: Up ed (B). Temporarily Fi Slope, Mineral Soil Fi the same Major (L: Limnetic (2)* Class per Perennial (3)* Class per Perennial (3)* Class icoded (A), Intermitten lats, Organic Soil Flats Montana Watersh Common	ies: RB, UB, A sses: RB, UB, tity Flooded (J) s, Lacustrine F ned Basin, s	B/ Subsystem: Uttoral AB, US/ Water Regim Modifiers: Excavated ringe ee definitions)	(4)/ Classes: Ries: Permanently (E), Impounded	, UB, AB, Flooded (H)
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SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT Left, #2

14A. Habitat for Federally I AA is Documented (D) of Primary or critical habitat Secondary habitat (list secondary habitat (list secondary habitat) Incidental habitat (list secondary habitat)	or Sus at (list speci	spected speci-	(S) to	cont			_					nstru	octions):		_					
No usable habitat		,		ı	S	A	ont_									_					
II. Rating (use the conclusi this function)	ons fr	om i ab	ove and	d the	matrix	below t	to arrive	at [c	ircle] th	e funct	ional po	ints	and ra	ting (H	l = hi	gh, M	1 = m	noderat	e, or L	= low]	for
Highest Habitat Level		doc./pr	rimary	1	sus/prir	nary	doc./	seco	ndary	sus.	/second	dary	do	c./inci	denta	1	sus.	incider	ntal	No	е
Functional Points and Ratin Sources for documented use	_	1 (H) observ	ations,		.9 (H) rds, etc):	.8 (N	1)		.7 (1	M)		.5	(L)			.3 (L)		(Ol)
AA is Documented (D) Primary or critical habits Secondary habitat (list Incidental habitat (list s No usable habitat Rating (use the conclusithis function)	at (list specie pecie	speci es) s)	es)			\$ 00	Nuis Nik n	ick	1900	d f	rog yell	ไขม	M		l = hi	_ _ _ gh, M	√ 1 = n	noderat	te, or L	. = low]	for
Highest Habitat Level		doc./pr	rimary		sus/prir	nary	doc	/seco	ndary	sus.	/second	dary	do	c./inci	denta	al le	sus.	/incide	ntal	No	ne
Functional Points and Ratin	ng	1 (H)			.8 (H)		C.7 (N	\bigcirc		.6 (1	M)		.2	(L)			.1 (L)		0 (1	.)
Sources for documented use					rds, etc		hut	On	In-	2	obs.	. CIA	1.			1					
14C. General Wildlife Habi I. Evidence of overall wild Substantial (based on any observations of abunda abundant wildlife sign s presence of extremely linterviews with local bio Moderate (based on any of	of the nt wild uch a imiting logists the fo	following follow	ng [cheo or high tracks, it featur nowled	ck]): spe nest es n ge o	cies div structu ot availa f the AA	ersity (ires, ga able in t	(during a ame trail the sum	any p ls, et ound	period) c. ing area		Low (base v or r e to i arse ervie	d on a no wild no wild adjace	iny of the life obtained and uple of the life of the l	serva gn and f	ations ood s	s duri	ing pea xes	ak use	periods	
observations of scattered common occurrence of adequate adjacent uplatinterviews with local bio ii. Wildlife habitat features	wildlif nd foo logists	e sign d sour s with k	such as ces nowled	s sca ge o	t, track	s, nest	structur	res, g	game tra	ils, etc			at exc	ception	nal (E), hiç	gh (H), mod	erate (M), or I	ow
(L) rating. Structural diversit of their percent composition of seasonal/intermittent; T/E = t	of the	AA (se	æ #10).	Ab	breviatio	ons for	surface	wate	er durati	ons are	as follo	ows:	P/P =	perma	anent	within /perc	n 209 ennia	% of ea l; S/I =	ch oth	er in te	ms
Structural diversity (see #13)					дh	•		1			_		erate				7		Lo	W	
Class cover distribution (all vegetated classes)		Eve	n			Une	ven			Eve	n			Un	even	\mathcal{I}			Ev	en	
Duration of surface	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	יו	T/E	Α	P/P	S/I	T/E	1

Structural diversity (see #13)		High							(Mode	erate			7	Low					
Class cover distribution (all vegetated classes)		Eve	n			Unev	en			Eve	n		(Unev	en			Eve	n	
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I)	T/E	Α	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	н	E	E	н	н	E	н	н	м	E	H (М	м	E	н	М	M
Moderate disturbance at AA (see #12i)	н	Н	Н	н	Н	н	н	М	н	н	М	М	н		М	L	Н	М	L	L
High disturbance at AA (see #12i)	м	М	М	L	М	М	L	L	М	м	L	L	М	L	L	L	L	L	L	L

III. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

Evidence of wildlife use (i)		Wildlife habitat fe	atures rating (ii)	
	Exceptional	High	Moderate	Low
Substantial	1 (E)	.9 (H)	.8 (H)	.7 (M)
Moderate	.9 (H)	.7 (M)	(.5 (M)	.3 (L)
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)

205+, #2

14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Perm	nanent / Pere	ennial	(Seas	onal / Intern	nittent	Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10–25%	<10%	>25%	10–25%	<10%)	>25%	10–25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	н	Н	. Н	M	М	М	М
Shading – 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	H	н	М	М	М	М	М	L	L
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	Н	М	М	М	L	L	L	L	L

II. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDFQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?

Y | N | Modified habitat quality rating = (circle), E, H, M (L)

life support?

Y | Modified habitat quality rating = (circle), | E | H | M | L |

III. Rating (use the conclusions from a and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

Types of fish known or		Modified Hab	oitat Quality (ii)	
suspected within AA	Exceptional	High	Moderate	(Low)
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4_(M)_
Non-game fish	.7 (M)	.6 (M)	.5 (M)	(.3 (L))
No fish	.5 (M)	.3 (L)	.2 (L)	·1 (L)

Comments: Minnows observed

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

ranount								_	
Estimated wetland area in AA subject to periodic flooding	≥ 10 acres			10, >2 acre	s	(≤2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	(.2(L))
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)

II. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)?

N (Y

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instanctions for further definitions of these terms].

instructions for further definitions of these terms).)								-			
Estimated maximum acre feet of water contained in wetlands		>5 acre fee	rt .	<	5, >1 acre fe	et	≤1 acre foot)				
within the AA that are subject to periodic flooding or ponding							_				
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	(S/L)	T/E		
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	(3(1))	.2(L)		
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	2(L)	.1(L)		

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver low or comp substantial nutrien	to moderate le pounds such the ly impaired. Mints or toxicants, pr	evels of sedime hat other functi nor sedimental	tion, sources of	nutrients, or toxi use with poter nutrients, or co	or "probable caus cants or AA reco ntial to deliver hig ompounds such npaired. Major se	es" related to eives or surrough levels of se that other fun- edimentation, s	sediment, unding land idiments, ctions are sources of
% cover of wetland vegetation in AA	_ ≥	70%	<	70%	≥ 70	< 7	70%	
Evidence of flooding or ponding in AA	(Yes)	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	(T(H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Rest,#2

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L

% Cover of wetland streambank or	Duratio	n of surface water adjacent to rooted ve	getation
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral
≥ 65%	1 (H)	.9 (H)	.7 (M)
35-64%	.7 (M)	.6 (M)	.5 (M)
< 35%	.3 (L)	.2 (L)	.1 (L)

Comments: Nominal " flow" Component,

14I. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

A		Vegeta	ted comp	oonent >	5 acres			(Vegeta	ted comp	conent 1-	5 acres)		Vegeta	ated com	ponent <	1 acre	
В	Hi	gh		erate		ow	H	igh	CMode	erale	LC	SW	Hi	gh	Mode	erate	Lo	w
C	Yes	No	Yes	No	Yes	No	Yes	No	(Yes)	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	(.7M)	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
A																		

Comments:

14J. Groundwater Discharge/Recharge: (Check the indicators in i &	ii below that apply to the AA)
I. Discharge Indicators	ii. Recharge Indicators
Springs are known or observed	Permeable substrate present without underlying impeding layer
Vegetation growing during dormant season/drought	Wetland contains inlet but no outlet
Wetland occurs at the toe of a natural slope	Other
Seeps are present at the wetland edge	
AA permanently flooded during drought periods	
Wetland contains an outlet, but no inlet	
Other	
iii. Rating: Use the information from i and ii above and the table below	to arrive at [circle] the functional points and rating [H = high, L = low] for this function.

 Rating: Use the information from i and ii above and the table below to arrive at [circle] 	the functional points and rating [H = high, L = low] for this function.
Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/R present	(1(H))
No Discharge/Recharge indicators present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments:

14K. Uniqueness:

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

Replacement potential	mature (>80	fen, bog, warm yr-old) forested ation listed as " MNHP	wetland or	rare types (#13) is	s and structu high or cont		cited ra	re types or a	n previously associations sity (#13) is ate
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	Pabundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	(3(L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	·2(t)	.1 (L)

Comments:

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y N If yes, rate as [circle] High [1] and go to ii; if no go to iii)

II. Check categories that apply to the AA: ____ Educational/scientific study; ____ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y N

(If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

 Iv. Rating (use the matrix below 	to arrive at [circle] the functional point	s and rating [H = high, M = moderate, or L:	= low] for this function.					
Ownership		Disturbance at AA (#12i)						
7 5 5 6 6 7 5 6 6 6 6 6 6 6 6 6 6 6 6 6	low	moderate	high					
public ownership	1 (H)	.5 (M)	.2(1)					
private ownership	.7 (M)	.3 (L)	(1 (L))					



FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0	1	
B. MT Natural Heritage Program Species Habitat	MOD	0.7	1	
C. General Wildlife Habitat	MOD	0.5	1	- 1
D. General Fish/Aquatic Habitat	LOW	0.3	1	
E. Flood Attenuation	LOW	0,2	1	
F. Short and Long Term Surface Water Storage	LON	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	AIGH	1.	1	14.7
H. Sediment/Shoreline Stabilization	NA	_		
I. Production Export/Food Chain Support	MOD	0.7	1	
J. Groundwater Discharge/Recharge	HIGH	1	1	
K. Uniqueness	LOW	0.3	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		5.1	11	

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or
Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Total actual functional points > 80% (round to nearest whole #) of total possible functional points.
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV)
Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or
Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or
 Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or
Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
Category III Wetland: (Criteria for Categories I, II or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy
criteria go to Category III) "Low" rating for Uniqueness; and
"Low" rating for Production Export/Food Chain Support; and
Total actual functional points < 30% (round to nearest whole #) of total possible functional points



Evaluation Date: Mo. 7 Da	ay/6 Yr. 01 4. E	valuator(s):	58/RH	5, Wet	lands/Site	(e) Enhance	emonf#	. /
Wetland Location(s): I. Legal:	: T 32(Nor S; R 21					ACTION OF THE PROPERTY OF		
III Wetershed: / A A 4	E0004 689	Reference	No. (if applies): _	_				
other Location Information SE of Zurich S of a. Evaluating Agency: MD b. Purpose of Evaluation:	Milk River, B	laine C	ountu tland size: (total a	cres) 20 AC	(visua	illy estimated) sured, e.g. by GPS	S (if applies))	
		9. Ass	sessment area: (A structions on deten		4-5 4-5	(visually estim (measured, e.	nated)	
0. Classification of Wetland a	nd Aquatic Habitats in	n AA (HGM :	according to Brinso	n, first col.; USF\	WS accordin	g to Cowardin [19	979), remainir	ng cols.)
HGM Class	System		Subsystem		Class	Water Regime	Modifier	% of AA
liverhe (non-per)	Palustrine		_		EM	SF	D	75
h '	4(AB	SPF	D	10
h	t)				55	Sat	D	10
h	Riverine		Intermitte	nt	S.B	SPF	D	5
								-
, Party Drained (PD), Farmed (F), Artific	vity Flooded (F), Seasonally Fi clai (A) HGM Classes: River	looded (C), Satur	S, EM/ Subsystem: Up; rated (B), Temporarily FI	per Perennial (3)/ Clar looded (A), Intermitten	sses: RB, UB, A By Flooded (J)	Modifiers: Excavated	es: Permanently	Flooded (H).
), Party Drained (PD), Farmed (F), Artific	cial (A) HGM Classes: River	iooded (C), Satur ine, Depression:	S, EM/ Subsystem: Up; rated (B), Temporarily Fi al, Stope, Mineral Soil Fi	per Perennial (3)/ Clar looded (A), Intermitten lats, Organic Soil Flats	sses: RB, UB, A By Flooded (J) s, Lacustrine Fri	B, US/ Water Regim Modifiers: Excavated nge	es; Permanently (E), Impounded	Flooded (H).
), Party Drained (PD), Farmed (F), Artific 1. Estimated relative abundan (Circle one) Un Comments: 2. General condition of AA:	ciel (A) HGM Classes: River co: (of similarly classifi	iooded (C), Setur ine, Depression: ied sites with Rare	IS, EM/ Subaystam: Up; rated (B). Temporarily Fi al, Slope, Mineral Soil Fi in the same Major I	per Perennial (3)/ Clar boded (A), Intermitten lats, Organic Soil Flats Montana Watersh Common	sses: RB, UB, A By Flooded (J) s, Lacustrine Fri	8, US/ Water Regim Modifiers: Excevated nge ee definitions)	es; Permanently (E), Impounded	Flooded (H).
Party Drained (PD), Farmed (F), Artific Estimated relative abundan (Circle one) Ui Comments:	ce: (of similarly classifi inknown	iooded (C), Setur ine, Depression: ied sites with Rare	(S, EM/ Subaystam: Up; rated (B). Temporarily Fi al, Slope, Mineral Soil Fi in the same Major I	por Perennial (3)/ Clar coded (A), Intermitten lats, Organic Soil Flats Montana Watersh Common	sses: RB, UB, A thy Flooded (J) , Lacustrine Fri ned Basin, se)	B, US/ Water Regime Modifiers: Excavated inge se definitions) Abundar	es: Permanently (E), Impounded nt	Flooded (H).
Party Drained (PD), Farmed (F), Artifice Estimated relative abundan (Circle one) Unicomments: General condition of AA: I. Regarding disturbance:	ce: (of similarly classifi inknown	etermine [circ	IS, EM/ Subsystem: Up; rated (B). Temporarily Fi al, Stope, Mineral Soil Fi in the same Major I cle] appropriate res Predomi ed in predominantly is not grazed, hayed, nerwise converted;	por Perennial (3)/ Classocide (A), Intermittentiats, Organic Soil Flats Montana Watersh Common ponse) nant conditions at Land not cultivated or payed or hayed or or hayed or or hayed or or has been subject.	sses: RB, UB, A by Flooded (J) s, Lacustrine En med Basin, se dijacent to (W, but motor deat selectively logs t to minor deat	8, US/ Water Regimm Modifiers: Excavated inge see definitions) Abundar Abundar State of State	es: Permanently (E), Impounded Int AA I or heavily graze itantial fill placem frological atterations	Flooded (H). (I), Diked and or logged; ent, grading
Party Drained (PD), Farmed (F), Artific Estimated relative abundan (Circle one) Unit Comments: General condition of AA: I. Regarding disturbance: Conditions within Coccurs and is managed in predominant azed, hayed, logged, or otherwise converse.	ciel (A) HGM Classes: River nce: (of similarly classifi Inknown : (use matrix below to de in AA	etermine [circ	IS, EM/ Subsystem: Up; rated (B). Temporarily Fi al, Stope, Mineral Soil Fi in the same Major I cle] appropriate res. Predomi: ed in predominantly is not grazed, hayed, servise converted; tain roads or buildings.	ponse) ponse) Land not cultivated, grazed or hayed or	sses: RB, UB, A by Flooded (J) s, Lacustrine En med Basin, se dijacent to (W, but moderate logs to minor clean or buildings.	B, US/ Water Regime Modifiers: Excavated note to definitions) Abundar Abundar Abundar Land cultivated ed. subject to s	es: Permanently (E), Impounded Int AA I or heavily graze itantial fill placem frological atteration	Flooded (H). (I), Diked and or logged; ent, grading
Party Drained (PD), Farmed (F), Artific Estimated relative abundan (Circle one) Ui Comments: Comments: Condition of AA: I. Regarding disturbance: Conditions within Coccurs and is managed in predominant azed, hayed, logged, or otherwise conve- ads or occupied, but moderately grazed o aged; or has been subject to relatively mi	ciel (A) HGM Classes: River ace: (of similarly classifi inknown : (use matrix below to de a AA atty natural state; is not inted, does not contain or hayed or selectively inor clearing, fill	etermine [circ Land manage natural state; logged, or oth does not cont	IS, EM/ Subsystem: Up; rated (B). Temporarily Fi al, Stope, Mineral Soil Fi in the same Major I cle] appropriate res. Predomi: ed in predominantly is not grazed, hayed, servise converted; tain roads or buildings.	ponse) Land not conditions at	see: RB, UB, A by Flooded (J) s, Lacustrine En and Basin, So but moderately selectively logg to minor clean or buildings.	8, US/ Water Regimm Modifiers: Excavated inge see definitions) Abundar	es: Permanently (E), Impounded nt AA for heavily graze stantial fill placent trological atteration sturbance	Flooded (H). (I), Diked and or logged; sent, grading
Party Drained (PD), Farmed (F), Artific Estimated relative abundan (Circle one) Unit Comments: C. General condition of AA: I. Regarding disturbance: Conditions within Conditions w	ciel (A) HGM Classes: River co: (of similarly classifi inknown : (use matrix below to de n AA itty natural state; is not inted, does not contain or hayed or selectively innor clearing, fill ains few roads or buildings.	etermine [circ Land manage natural state; logged, or oth does not cont	IS, EM/ Subsystem: Up; rated (B), Temporarity Fi al, Stope, Mineral Soil Fi al, Stope, Mineral Soil Fi in the same Major I in the same Major I cle) appropriate res. Predomic ed in predomathy is not grazed, hayed, servise converted; tain reads or buildings. pance disturbance	ponse) Cand of conditions according few roads Land not cultivated, grazed or hayed or on has been subject contains few roads low disturbance	see: RB, UB, A ty Flooded (J) , Lacustrine En and Basin, se) dijecent to (W , but modely logs at to minor deart or buildings.	B, US/ Water Regimm Modifiers: Excavated inge see definitions) Abundar	es: Permanently (E), Impounded nt AA for heavily graze stantial fill placem strotogical atteration sturbance nance	Flooded (H). (I), Diked and or logged; ent, grading
Party Drained (PD), Farmed (F), Artifice Estimated relative abundan (Circle one) Unit Comments: Comments: Comments: Condition of AA: I. Regarding disturbance: Conditions withing the conversation of th	ciel (A) HGM Classes: River ace: (of similarly classific inknown it (use matrix below to de a AA ity natural state; is not inted; does not contain or hayed or selectively infor clearing, fill ains few roads or buildings subject to relatively g, or hydrological alteration; rbance, intensity, seaso	ed sites with Rare etermine [circ Land manage natural state; logged, or oth does not cont low disturb moderate cont high disturb	IS, EM Subsystem: Uprated (B). Temporarily Flat, Stope, Mineral Soil Flat, Stope, Market Soil Flat, Market Soil Flat, Stope, Market Soil Flat	ponse) mant conditions accorded (A), Intermittent lats, Organic Soil Flats Montana Watersh Common ponse) mant conditions accorded or hayed or or hayed or hayed or hayed or or has been subject contains few roads. In a condition of the contains few roads are moderate disturbance.	sees: RB, UB, A by Flooded (J) s, Lacustrine En and Basin, see) Cijacent to (W, but moderately selectively logg to minor clear or buildings.	B, US/ Water Regimm Modifiers: Excavated nage see definitions) Abundar within 500 feet of) Land cultivated subject to subside adening or hydor building den moderate di high disturb	es: Permanently (E), Impounded nt AA for heavily graze stantial fill placem strotogical atteration sturbance nance	Flooded (H) (I), Diked and or logged; ent, grading
), Party Drained (PD), Farmed (F), Artific I. Estimated relative abundan (Circle one) Ui Comments: 2. General condition of AA: I. Regarding disturbance: Conditions within A occurs and is managed in predominant azed, hayed, logged, or otherwise convet ados or occupied buildings. A not cultivated, but moderately grazed o aged; or has been subject to relatively mi scement, or hydrological alteration; conte abstantial fili placement, grading, clearing the road or building density. Comments: (types of distur II. Prominent weedy, allen	ciel (A) HGM Classes: River ace: (of similarly classifi inknown (use matrix below to de AA (by natural state; is not writed, does not contain or hayed or selectively sinor clearing, fill ains few roads or buildings. subject to relatively g, or hydrological atteration; rbance, intensity, seaso b, & Introduced specie	etermine [circ Lend manage natural state; logged, or oth does not cont low disturb moderate cont high distur	IS, EM Subsystem: Uprated (B), Temporarity Flat, Stope, Mineral Soil Flat, Miner	ponse) mant conditions according few roads Land not cultivated, grazed or hayed or or has been subject contains few roads low disturbance moderate disturbance disturbance sticated, feral): ((a)	sses: RB, UB, A by Flooded (J) s, Lacustrine En ded Basin, se discount to (w but moderatel) selectively logg t to minor clean or buildings.	B, US/ Water Regimm Modifiers: Excavated nige see definitions) Abundar Abundar Abundar Abundar Subject to subside a subject to subject to subject to subject to subject to subside a subject to subject to subject to subject to subject to subside a subject to subj	es: Permanently (E), Impounded AA I or heavily graze stantial fill placer trological atteration sturbance ance	rice of the second of the seco
A occurs and is managed in predominant azed, hayed, logged, or otherwise converads or occupied buildings. A not cultivated, but moderately grazed or goged; or has been subject to relatively machine a cultivated or heavily grazed or logged; or has been subject to relatively machine a cultivated or heavily grazed or logged; or has been subject to relatively machine a cultivated or heavily grazed or logged; or has been subject to relatively machine a cultivated or heavily grazed or logged, shatantial file placement, grading, cleaning thread or building density. Comments: (types of distur	ciel (A) HGM Classes: River ace: (of similarly classifi inknown (use matrix below to de AA (by natural state; is not writed, does not contain or hayed or selectively sinor clearing, fill ains few roads or buildings. subject to relatively g, or hydrological atteration; rbance, intensity, seaso b, & Introduced specie	etermine [circ Lend manage natural state; logged, or oth does not cont low disturb moderate cont high distur	IS, EM Subsystem: Uprated (B), Temporarity Flat, Stope, Mineral Soil Flat, Miner	ponse) mant conditions according few roads Land not cultivated, grazed or hayed or or has been subject contains few roads low disturbance moderate disturbance disturbance sticated, feral): ((a)	sses: RB, UB, A by Flooded (J) s, Lacustrine En ded Basin, se discount to (w but moderatel) selectively logg t to minor clean or buildings.	B, US/ Water Regimm Modifiers: Excavated nige see definitions) Abundar Abundar Abundar Abundar Subject to subside a subject to subject to subject to subject to subject to subside a subject to subject to subject to subject to subject to subside a subject to subj	es: Permanently (E), Impounded AA I or heavily graze stantial fill placer trological atteration sturbance ance	rid or logged; nent, grading on; high road
Party Drained (PD), Farmed (F), Artifice Estimated relative abundan (Circle one) Ut Comments: Comments: Conditions within Conditions wi	ciel (A) HGM Classes: River co. (of similarly classifications of the control of t	etermine [circ Lend manage natural state; logged, or oth does not cont low disturb moderate of the cont on, etc.): ### in, etc.): #### in, etc.): #### in, etc.): #### in the cont i	in the same Major I cle] appropriate res Predomi ed in predominantly is not grazed, hayed, herwise converted; tain roads or buildings, hance disturbance thance thance thance that Crossing ad classes present	ponse) mant conditions according few roads Land not cultivated, grazed or hayed or or has been subject contains few roads low disturbance moderate disturbance disturbance sticated, feral): ((a)	sees: RB, UB, A by Flooded (J) a, Lacustrine En discount to (w but moderatel) selectively logg to minor clean or buildings.	B, US/ Water Regimm Modifiers: Excavated inge see definitions) Abundar within 500 feet of) Land cultivated subject to subside generate distribution or building den moderate distribution high disturb high disturb high disturb accept of the control of the contr	es: Permanently (E), Impounded AA I or heavily graze stantial fill placer trological atteration sturbance ance	d or logged; end or logged; end, greding on; high road

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

Incidental habitat (lis No usable habitat	bitat (list st speci t specie	t specie les)		1		_	d E	agle.						=					
II. Rating (use the conclusion)	usions fr	rom i ab	oove and	d the	matrix	below t	to arrive	at [circle] th	e func	tional po	ints	and rat	ing [H =	high,	M = 1	moderat	e, or L	= low] f	for
Highest Habitat Level		doc./pr	rimary		sus/pri	mary	doc.	secondary	sus	./secon	dary	doc	:/incide	ntal	sus	./incide	ntal	None	e
Functional Points and R	ating	1 (H)			9 (H)		.8 (1)	1)	.7 (M)		.5 (L)	1	.3 (1	\sim		0 (L))
Sources for documented u	ıse (e.g.	observ	rations,			;):						-		-					
14B. Habitat for plant or I. AA is Documented (I Primary or critical ha Secondary habitat (II Incidental habitat (Iis No usable habitat II. Rating (use the concl.)	D) or Sus bitat (list st speci t specie	spected t specie les)	d (S) to es)	cont	ain (circ	(Fix	ato	on definition	loag	ained in	instru	uctions)	:		,			= low1 f	for
this function)				Т			_		_			_			_				_
Highest Habitat Level	_	doc./pr	rimary	+	sus/pri	mary	doc	secondary	sus	/secon	dary	doc	:/incide	ntal	sus	/incider	ntal	None	<u>e_</u>
Functional Points and R					.8 (H)		.7 (N	0	.6(M)		1.2(L)		.1 ((_		0 (L))_
Sources for documented in	and septiment of the local division in		77			-	0	-	-	+ P	-	-	2 16 2	A	7	The second lines are		ACCRECATE TO SECOND	
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Wikilife habitat features rating (ii)

Moderate

.8 (H)

.5 (M)

.2 (L)

Low

.7 (M)

.3 (L)

.1 (L)

High

.7 (M)

.4 (M)

Comments:

Substantial

Moderate

Minimal

moderate, or L = low] for this function)

Exceptional

1 (E)

.9 (H)

.6 (M)

Evidence of wildlife use (i)

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Enh. #1

14D, General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H) moderate (M), or low (L) quality rating.

Duration of surface water in AA					onal / Intern		Temporary / Ephemeral			
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10–25%	<10%	(>25%)	10-25%	<10%	>25%	10–25%	<10%	
Shading ->75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	н	Н	Н	М	М	М	М	
Shading – 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	н	Н	М	M	М	М	М	L	L	
Shading - < 50% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	н	М	М	(M	L	L	L	L	L	

If the support?

Y) A Modified habitat quality rating = (circle) E H M

III. Rating (use the conclusions from and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate or L = loud for this function)

Types of fish known or				
suspected within AA	Exceptional	High	Moderate	(w)
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	ATML
Non-game fish	.7 (M)	.6 (M)	.5 (M)	(.3(L))
No fish	.5 (M)	.3 (L)	27(1)	17(1)

Comments: Minnows observed.

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

randony									
Estimated wetland area in AA subject to periodic flooding	≥ 10 acres			(<10, >2 acres	-	≤2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	.2(L)
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)

II. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle) Comments:

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	T	>5 acre fee	×	<	5, >1 acre fe	eet		≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	(S/I)	T/E	
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	(.3(L))	.2(L)	
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)	

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. Waterbody on MDEQ list of wat development for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants or AA receives or surrounding land use with potential to deliver for "probable cau nutrients, or toxicants							ses" related to eives or surror gh levels of se that other fund edimentation, s	sediment, unding land diments, ctions are sources of		
% cover of wetland vegetation in AA	≥7	70%	<	70%	≥ 70	≥ 70% < 70%				
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No		
AA contains no or restricted outlet	1.(H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)		
AA contains unrestricted outlet	ns unrestricted outlet (.9 (H)) .7 (M) .6 (M) .4 (M)				.4 (M)	.3 (L)	.2 (L)	.1 (L)		

comments: Sediments filtered by "upstream" impoundment.

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L

% Cover of wetland streambank or	Duration of surface water adjacent to rooted vegetation								
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal 7 intermittent	Temporary / ephemeral						
≥ 65%	1 (H)	.9 (H)	.7 (M)						
35-64%	.7 (M)	(M) 6.	.5 (M)						
< 35%	.3 (L)	.2 (L)	.1 (L)						

Few shrubs along actual water course.

14I. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

T/F /A= temporary/ephemeral or absent (see instructions for further definitions of these terms).)

A		Vegeta	ted comp	ponent >	5 acres		<u> </u>	Vegetated component 1-5 acres					Vegetated component <1 acre							
В	Hi	gh	Mod	erate	L	ow	H	ob)	Mod	erate	Lo	w	Hi	gh	Mod	erate	Lo	w		
C	Yes	No	Yes	No	Yes	No	(Yes)	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L		
S/I	.9H	.8H	.8H	.7M	.7M	.6M	(J8H)	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L		
T/E/	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L		
A																				

Comments:

14J. Groundwater Discharge/Recharge: (Check the indicators in i & i	ii below that apply to	the AA)
I. Discharge Indicators	li. Recharge Indi	cators
Springs are known or observed	Permeable sub	ostrate present without underlying impeding layer
Vegetation growing during dormant season/drought	Wetland conta	ins inlet but no outlet
Wetland occurs at the toe of a natural slope	Other	
XX Seeps are present at the wetland edge	_	
AA permanently flooded during drought periods		
Wetland contains an outlet, but no inlet		
Other		
iii. Rating: Use the information from i and ii above and the table below	to arrive at [circle] th	e functional points and rating [H = high, L = low] for this function.
Criteria		Functional Points and Rating

Criteria	Functional Points and Rating				
AA is known Discharge/Recharge area or one or more indicators of D/R present	(1(H))				
No Discharge/Recharge indicators present	.1 (L)				
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)				

Comments:

14K. Uniqueness:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this

Replacement potential	AA contains f	en, bog, warm	springs or	AA does n	ot contain pre	viously cited	AA does	not contain	previously	
Tropico official potential		mature (>80 yr-old) forested wetland or			s and structu		cited rare types or associations			
	plant association listed as "S1" by the				high or cont		and structural diversity (#13) is			
		MNHP	•			by the MNHP	low-moderate			
Estimated relative abundance (#11)	rare	common	abundant	rare	(common)	abundant	rare	common	abundant	
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	(.5 (M))	.4 (M)	.4 (M)	.3 (L)	.2 (L)	
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)	

Comments:

14L. Recreation/Education Potential: I. Is the AA a known rec/ed. site: (circle) Y N If yes, rate as [circle] High [1] and go to ii; if no go to iii) II. Check categories that apply to the AA: ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y (N (If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

Iv. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Disturbance at AA (#12i)							
low	moderate	high					
1 (H)	.5 (M)	.2 (L)					
.7 (M)	.3 (L)	(1 (L))					
	1 (H)	low moderate 1 (H) .5 (M)					

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	MoD	0.7	1	
C. General Wildlife Habitat	AIGH	0.9	1	
D. General Fish/Aquatic Habitat	LOW	0.3	1	
E. Flood Attenuation	MOD	0.4	1	
F. Short and Long Term Surface Water Storage	COW	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	H164	0.9	1	
H. Sediment/Shoreline Stabilization	MoD	0.6	1	
I. Production Export/Food Chain Support	H164	0.8	1	
J. Groundwater Discharge/Recharge	AlGH		1	
K. Uniqueness	MOD	0.5	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		6.5	12	

54%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

(W) III

IV

Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Total actual functional points > 80% (round to nearest whole #) of total possible functional points.
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
Category III Wetland: (Criteria for Categories I, II or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III) "Low" rating for Uniqueness; and "Low" rating for Production Export/Food Chain Support; and Total actual functional points < 30% (round to nearest whole #) of total possible functional points



MDT Project Name: <u>Musgrark</u>	Montana We Lake	tland A	\sses _ 2. Pro	ssment oject#: <u>// //</u>	Form (revise - STPX 3 (2	ed 5/2	5/1999) Control #:_	4421	
. Evaluation Date: Mo. 7 Day	<u>/6 Yr.01</u> 4.E	valuator(s	s):2[B/RH	5 , Wet	ands/Site	#(s) Anhawa NE end of	mont # 6 Musara	2 W.Z.E.
i. Wetland Location(s): I. Legal: T	32(Nors: R 21								
iii. Watershed: 1005 Other Location Information: SE of Zurich, S of A	0004 GPS 1:1k River. B	laine	Cour	fapplies):_					
b. Purpose of Evaluation: 1Wetlands potentially affice. 2Mitigation wetlands; pre 3Mitigation wetlands; por 4Other	ected by MDT project	8, W t 9, A	etland :	size: (total ed ent area: (A ons on deter		(visu (mea	ally estimated) sured, e.g. by GP (visually estin (measured, e	nated)	
10. Classification of Wetland and	Aquatic Habitats I	n AA (HGN	d accord	ling to Brinso	n, first col.; USFV	VS accord	ng to Cowardin [1:	979], remaini	ng cols.)
HGM Class	System		Subsy	stem		Class	Water Regime	Modifier	% of AA
Ringing (Laure Per.)	Palustrine		_	-		EM	SF	_	50
11	11			~		AB	IE	_	20
l(h		-	-		55	SF	-	5
tt.	11			•		UB	PF	-	25
						<u> </u>			-
11. Estimated relative abundance (Circle one) Unk Comments:	o: (of similarly classif nown	ied sites wi Rar		same Major I	Montana Watersh Common	ed Basin, s	ee definitions) Abunda	int	
I. Regarding disturbance: (etermine [c	ircle] ap	propriate res	ponse)			**	
Conditions within A	•A	natural state	te; is not g otherwise	edominantly razed, hayed,	Land not cultivated, grazed or hayed or s or has been subject contains few roads	but moderate selectively log to minor clea	ged; subject to sub	d or heavily graz stantial fill place drological alteral	ment, grading.
A occurs and is managed in predominantly prazed, hayed, logged, or otherwise converte		low distu		S or Domonique	low disturbance		moderate d		
adds or occupied buildings. A not cultivated, but moderately grazed or hopped; or has been subject to relatively mind	ayed or selectively	moderate	e disturb	ance	moderate distur	bance	high disturt	oance	
placement, or hydrological alteration; contain AA cultivated or heavily grazed or logged, sui substantial fill placement, grading, clearing, c	bject to relatively	high dist	urbance	,	high disturband	e	high distur	oance	
Comments: (types of disturbed ii. Prominent weedy, alien, &	ance, intensity, seaso Introduced specie	on, etc.):_f	Hay/ ng thos	e not dome:	sticated, feral): (i	ist)_CIR	ARV		
ill. Provide brief descriptive thin easement ana, and to east by we	summary of AA and AA boidered to the Aand backing	Nts l	ding land h	nd use/habit a y l ond ons/s/5 e	bordend to bordend to bordend to	ortion wst /AB/O	of Musgral by primagily A hobitat	n Late	der,
13. Structural Diversity: (based o	n number of "Coward	din" √egeta	eted clas	sses present	(do not include un	vegetáted	classes], see #10	above)	
# of "Cowardin" vegetated classe	s present in AA (see	#10)			ted classes (or s forested)	2 vegeta 1 if fores	ted classes (or ited)	≤ 1 vegetate	ed class
Rating (circle)			(High)		Moderat	e	Low	
Comments:	are manifestation of the								

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

 Habitat for Federali AA is Documented (I Primary or critical hal Secondary habitat (Iis Incidental habitat (Iis No usable habitat 	D) or Subitat (list st speci	specte t speci les)	d (S) to	con			based		efinitions			instr	uctions)	:						
II. Rating (use the concluthis function)	usions fr	rom i al	bove an	d the	matrix	below t	o arrive	at [circle] th	e func	tional po	ints	and rati	ing (H	= high, l	M = 1	moderat	e, or L	= low] f	or
Highest Habitat Level		d∞./p	rimary	1	sus/prin	nary	doc.	/sec	ondary	sus	./secon	dary	doc	./incide	ental	sus	./incider	ntal	None	a_
Functional Points and R.	ating	1 (H)			.9 (H)		.8 (N	۸)		.7 (M)		.5 (L)		3(L)		0 (L)	
Sources for documented u	ıse (e.g.	obsen	vations,	reco	rds, etc):										_				
14B. Habitat for plant or I. AA is Documented (I Primary or critical hal Secondary habitat (II Incidental habitat (IIs No usable habitat	D) or Su bitat (list st speci t specie	specte t speci les) us)	d (S) to les)	con	tain (circ D S D S D S D S	Add	Desed o	on de	efinitions [J.	opo (ined in	instr	uctions)	; ; <u>?</u> ('	<u> </u>			/	= low] f	for
this function) Highest Habitat Level		doc./p	rimary	Т	sus/prir	nary	doc	doc/secondary sus/secondary doc/in				./incide	ental	sus	./incider	ntal	None	9		
Functional Points and R	ating	1 (H)			.8 (H)		(.7 (N	n /	.6 (M)					.2 (L) .1 (0 (L)	,
Sources for documented u			vations,	reco): /	$\overline{\mathbf{y}}$	1	95 6		1	t	,	nla	7.	65			1 - 1 - 1	
Substantial (based on ar observations of abundant wildlife sign presence of extreme interviews with local limiterviews with lo	ny of the dant with n such a ly limiting biologist of the fo ered with of wildlift biologist es (work risity is fo on of the	following the state of the stat	ing [check s or high tracks, at featur knowled g [check oups or such at ress knowled or top to 3. For ee #10).	ck]): n spo ness ness nige of individual ind	ecies divitation availation availation availation, circus at the AA tom, circus at the availation at A = al	ersity (res, ga ble in t relatir s, nest cle app o be co ons for	during : ame trai the sum wely few structu ropriate onsiden surface	any pis, et ounce	period) tc. fing area ecies dur game tra attribute venly dis	ing peails, etc	Low (fer	base ov or i e to arse ervie ds ds	ed on are modeled on wildle adjacer was with eat exce classes P/P = pf these	eptiona emark	ervation Ind food plotogist I (E), his be with nent/pen	s du sour s wit gh (H in 20	h knowi H), mode 1% of ea	edge of erate (N	f the AA M), or lo ar in ten	w
Structural diversity (see #13)				H	9D		_			_		Mode	erate					Lov		
Class cover distribution (all vegetated classes)		Eve	ก		(Unev	en)			Eve	n			Unev	en			Eve	n	
Duration of surface	P/P	S/I	T/E	Α	PP	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	.T/E	Α	P/P	S/I	T/E	Α
water in ≥ 10% of AA Low disturbance at AA (see #12i)	E	E	E	н	E	E	н	н	E	Н	н	м	E	н	м	м	E	Н	м	М
Moderate disturbance at AA (see #12i)	н	н	н	Н	\odot	Н	н	м	н	н	М	М	н	M	М	L	Н	М	L	L
High disturbance at AA (see #12i)	М	м	М	L	M	М	L	L	М	М	L	L	М	L	_	L	L	L	٦	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

Evidence of wildtife use (i)	•	Wildlife habitat fea	tures rating (ii)	
	Exceptional	(High)	Moderate	Low
Substantial	1 (E)	(H))	.8 (H)	.7 (M)
Moderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)

comments: Numerous sonsbirds + game trails.

Enh. # 2 AND & WATER B-41

14D, General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	(Perm	nanent / Pere	ennial)	Seas	onal / Intern	nittent	Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation etc.	>25%	0-25%	<10%	>25%	10–25%	<10%	>25%	10-25%	<10%
Shading - > 15% of streambank of shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	Н	н	н	М	М	М	М
Shading – 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	н	Н	М	М	М	М	М	L	L
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	Н	(M)	М	М	L	L	L	L	L

II. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired (See Sincluding cold or warm water fishery or aquatic life support?

N Modified habitat quality rating = (circle) E H M L

III. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low) for this function)

Types of fish known or suspected within AA		Modified Ha	bitat Quality (ii)	
suspected within AA	Exceptional	High	Moderate	Low
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)
Non-game fish	.7 (M)	.6 (M)	(5 (M))	.3 (L)
No fish	5 (M)	3(1)	707	1(L)

Comments: Only minneys present allording to FWP (Gilge Reis, Comm.)

14E. Flood Attendation: (applies only to wetlands subject to flooding via in Annual or overbank flow. If wetlands in An are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this functional

Turicusty												
Estimated wetland area in AA subject to periodic flooding		≥ 10 acres			<10, >2 acres	5	≤2 acres					
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	(<25%)	75%	25-75%	<25%			
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M))	.4(M)	.3(L)	.2(L)			
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)			

II. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle) (Y)

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	1_0	>5 acre fee	D.	<5	i, >1 acre fe	et	≤1 acre foot		
Duration of surface water at wetlands within the AA	(P/P)	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	.3(L)	.2(L)
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver k or co substant	eives or surroundi ow to moderate le impounds such the ially impaired. Min ents or toxicants, pn	evels of sedimentation of sedimentations of the sedimentation of the sed	ents, nutrients, tions are not ation, sources of	Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.						
% cover of wetland vegetation in AA		≥ 70%)	<	70%	≥ 70	0%	< 7	70%			
Evidence of flooding or ponding in AA	(Yes)	No	Yes	No	Yes	No	Yes	No			
AA contains no or restricted outlet	(1(H))	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M) ·	.3 (L)	.2 (L)			
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)			

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Enh.#2

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action) If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = loud for this function.

% Cover of wetland streambank or	Duretio	Duration of surface water edjecent to rooted vegetation											
shoreline by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral										
≥ 65%	(1(H))	.9 (H)	.7 (M)										
35-64%	.7 (M)	.6 (M)	.5 (M)										
< 35%	.3 (L)	.2 (L)	.1 (L)										

Comments: Shows along shore

14l. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E /A= temporary/ephemeral or absent [see instructions for further definitions of these terms].)

Α		Vegeta	ted com	ponent >	5 acres			(Vegeta	egetated component 1-5 acres					Vegetated component <1 acre						
8	H	gh	Mod	erate	L	ow		ob	Mod	erate	1	w	Hi	gh	Mod	erate	L	ow		
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
P/P	1H	.9H	.9H	.8H	.8H	.7M	(.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L		
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L		
T/E/	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L		

Comments:

14J. Groundwater Discharge/Recharge: (Check the indicators in i I. Discharge Indicators X Springs are known or observed Vegetation growing during dormant season/drought Wetland occurs at the toe of a natural slope Seeps are present at the wetland edge AA permanently flooded during drought periods Wetland contains an outlet, but no inlet Other	II. Recharge Indica Permeable subsi Wetland contains Other	ntors' trate present without underlying impeding layer in let but no outlet
III. Rating: Use the information from i and ii above and the table belo	w to arrive at [circle] the	unctional points and rating [H = nigh, L = low] for this function.
Criteria		Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of Di	R present	(1 (H))
No Discharge/Recharge indicators present		.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R	potential	N/A (Unknown)

Comments:

14K. Uniqueness:

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Replacement potential	AA contains t mature (>80 y plant associa		wetland or	AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP		cited ra	AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common		rare	common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	C5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

Comments:

14L. Recreation/Education Potential: I. is the AA a known rec./ed. site: (circle) Y N of yes, rate as [circle] High [1] and go to ii, if no go to iii)

II. Check categories that apply to the AA: ___ Educational/scientific study; xx Consumptive rec.; ___ Non-consumptive rec.; ___ Other III. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y)N

(If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

IV. Rating (use the matrix below to arrive at [circle] the functional points and rating (H = high, M = moderate, or L = low) for this function

Ownership	Disturbance at AA (#12)						
	low moderate high						
public ownership	1 (H)	.5 (M)	.2 (L)				
private ownership	.7 (M)	(37L)	.1 (L)				

Comments: Waterfow hunting

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	MOD	0.7	1	
C. General Wildlife Habitat	A164	0.9	1	
D. General Fish/Aquatic Habitat	MOD	0.5		
E. Flood Attenuation	MOD	0.5	i	
F. Short and Long Term Surface Water Storage	14164	1.	1	
G. Sediment/Nutrient/Toxicant Removal	H16+	1	1	
H. Sediment/Shoreline Stabilization	HIGH	1	1	
Production Export/Food Chain Support	H164	0.9	1	
J. Groundwater Discharge/Recharge	H16H	1	1	
K. Uniqueness	MOD	0.5	1	
L. Recreation/Education Potential	LOW	0.3	1	
Totals:		8.6	12	

72%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

1	111	I۷

=	ory I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Total actual functional points > 80% (round to nearest whole #) of total possible functional points.
	ory II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to ory IV) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.
	ory III Wetland: (Criteria for Categories I, II or IV not satisfied)
Categ criteria	ory IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy a go to Category III) "Low" rating for Uniqueness; and "Low" rating for Production Export/Food Chain Support; and Total actual functional points < 30% (round to nearest whole #) of total possible functional points



Montana Department of Transportation Wetland Mitigation Monitoring Project

Project Name Project/task number

Musgrave Le Musgrave Le Musgrave Le Musgrave Lake 019 Rest #1 019 Rest #2 019 Enh #1 019 Enh #2

for

Date Land and Water Consulting

Field Personnel

Note

	_	Note					
	2001	Rhithron Sample Identification	2	15	6	21	
Coelenterata		Hydra		1	1		
Oligochaeta	Enchytraeidae	Enchytraeidae	11				
	Naididac	Chaetogaster				6	
		Nais elinguis	13				
		Nais variabilis		8			
		Ophidonais serpentina					
	Tubificidae	Tubificidae - immature			1		
		Limnodrilus hoffmeisteri	1				
Hirudinea	Erpobdellidae	Mooreobdella microstoma					
		Nephelopsis					
	Glossiphoniidae	Helobdella stagnalis					
		Helobdella					
		Glossiphonia					
Bivalvia	Sphacriidac	Sphaerium					
Gastropoda	Lymnaeidac	Fossaria	1				
	Physidae	Physa		34	13	19	
	Planorbidae	Gyraulus	1	15	26	5	
		Helisoma					
Crustacea	Cladocera	Cladocera		52	57	9	
	Copepoda	Calanoida					
		Cyclopoida	17	23	2		
	Ostracoda	Ostracoda	34	5	4		
	Amphipoda	Gammarus					
		Hyalella azteca	4	75	52	16	
	Decapoda	Orconectes		0000000	9971	10000	
Acarina		Acari	18	5	3	7	
Odonata	Aeshnidae	Anax ·	-		1		
		Libellulidae-early instar					
		Sympetrum	1				
	Coenagrionidae	Coenagrionidae-early instar		1	7	9	
		Enallagma		-			
	Lestidae				1	1	
Ephemeroptera	Bactidae	Callibaetis				7	
	Caenidae		1	1			
Hemiptera	Corixidae	Corixidae - immature	2	7	4	1	
		Hesperocorixa					
		Sigara	7		5		
		Trichocorixa		3	1		
	Nepidae	Ranatra		1	-		
	Notonectidae			1	1		
Trichoptera	Hydroptilidae	Hydroptilidae - pupa					
		Leptoceridae - carly instar					
	•	Mystacides					
		Ylodes					
Colcoptera	Chrysomelidae	Chrysomelidae					
•	Curculionidae		1				
	Dytiscidae				1		
	•	Hydroporinae - early instar larvae		2			
		Hygrotus		1	1	3	
		Liodessus	2				
		Laccophilus	1	3	12		
		Neoporus		1			
	Elmidae	Heterlimnius					
	Haliplidae		9	6	7	1	
	•	Peltodytes		1			
	Hydrophilidae		3	2			
		Helophorus	95.0	1770			
		Hydrobius	8				
		Hydrochara			1		
		Laccobius					
		Tropisternus	5			1	
Diptera	Ceratopogoninae	Bezzia/Palpomyia	4				
10 0 F 10 10 10 10 10 10 10 10 10 10 10 10 10		Dasyhelea	5				
	Chaoboridae						
		Anopheles					
		Culex	5				
	Ephydridae	Ephydridae					
	Simuliidae						
		Sciomyzidae					
	Stratiomyidae		3				
	Chironomidac						
		Chironomus	29	2	3		
		Cladotanytarsus	===	-			
		Corynoneura			1	1	
		Cryptotendipes			-	-	
		Dicrotendipes	4	3	2	1	
		Einfeldia	5				
		Endochironomus		1	1		
		Labrundinia		-	•		
		Microtendipes					
		Orthocladius annectens	1	9	3	3	
		Parachironomus	_	8	1		



Paramerina		3	1	2
Paratanytarsus				2
Phaenopsectra				
Polypedilum	0.2			
Procladius	2			
Psectrocladius	1		1	
Psectrotanypus	1			
Pseudochironomus				
Tanypus				
Tanytarsus	1			
•				
TOTAL	201	274	214	85
grids	8	1	23	30
Total taxa	32	28	29	16
POET	6	6	5	5
Chironomidae taxa	8	6	8	4
Crustacea taxa + Mollusca taxa	3	3	3	3
% Chironomidae			6.07476636	
Orthocladiinae/Chironomidae			38.4615385	
%Amphipoda			24.2990654	
%Crustacea + %Mollusca			42.5233645	
HBI			7.54672897	
%Dominant taxon		27.3722628		22.3529412
%Collector-Gatherers			38.7850467	
%Filterers	0	18.9781022	26.635514	10,5882353
2000 9	_	_	_	-
Total taxa	5	5	5	3
POET	5	5	3	3
Chironomidae taxa	5	3	5	3
Crustacea taxa + Mollusca taxa	5	5	5	5
% Chironomidae	1	3	3	3
Orthocladiinae/Chironomidae	1	3	3	3
%Amphipoda	3	1	1	1
%Crustacea + %Mollusca	3	1	1	1
HBI	3	1	1	3
%Dominant taxon	5	3	5	5
%Collector-Gatherers	3		1	3
%Filterers	3	1	i	1
site score	42	34	34	34

Appendix C

REPRESENTATIVE PHOTOGRAPHS

MDT Wetland Mitigation Monitoring Musgrave Lake Zurich, Montana











RS1, Transect 1 from End, 192 degrees S/SW



ES1, Transect 2 from Start, 106 degrees E/SE



ES1, Transect 2 from End, 299 degrees W/NW



RS2, Transect 2 from Start, 167 degrees S/SE



RS2, Transect 2 from End, 354 degrees N/NW



2001 Musgrave Lake Sheet 2





2001 Musgrave Lake Sheet 3

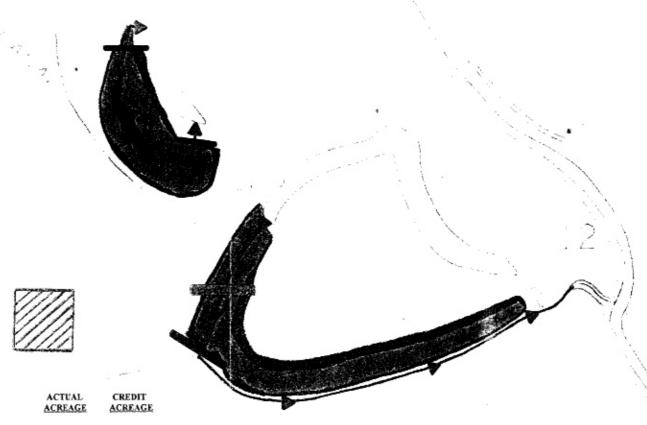
Appendix D

CONCEPTUAL SITE LAYOUT
COMPLETED PRE-PROJECT FUNCTIONAL ASSESSMENT
FORMS

MDT Wetland Mitigation Monitoring Musgrave Lake Zurich, Montana



MUSGRAVE LAKE RANCH WETLAND RESTORATION CONCEPTUAL PLAN



SYMBOL	DESCRIPTION	ACREAGE	ACREAGI
200	Standing Water Depth from 0" to 24"	16.6 acres	15.2 acres
	Standing Water Depth from 24" to 42"	3.6 acres	3.6 acre
	Riparian and Upland Buffer	8.4 acres	8.4 acres 27.2 acres
100	Ditch Plug/Dike		
	Borrow Area and Road Fill (existing)		

Existing Ditches



							W/C113334	
Evaluation Date: Mo oq Da-	29 Yr 99 4 E	valuator(:	1: Jin Stutza	SAA_ 5 Wetla	inds/Site #	(s) Reference	e Site	
Wetland Location(s): i. Legal: ii, Approx. Stationing or Mile	T <u>30</u> (Por S; R <u>2.1</u> eposts:	€¤W;	S II NE 1/4	:T_ <u>32</u> @o	S, R <u>3.1</u>	€or W: \$_12	NW 4-	
iii. Watershed: Other Location Information:	GPS	Reference	e No. (if applies):					
a. Evaluating Agency: b. Purpose of Evaluation: 1. Wetlands potentially aff 2. Mitigation wetlands; pre 3. Mitigation wetlands; po	-construction	9. A	retiand size: (total ac ssessment area: (A instructions on deterr	A, tot., ac.,	20 +	lly estimated) sured, e.g. by GP:(visually estim(measured, e.	ated)	
Classification of Wetland an HGM Class	d Aquatic Habitats in System	AA (HG	M according to Brinso Subsystem	n, first col : USFV	S accordin	g to Cowardin [19 Water Regime	Modifier	g cols.)
Depression (open, surface.)				VII.	EM SS	F	-	1005
	33,03,7,100							
							<u> </u>	
							-	
	l							1
1. Estimated relative abundance	e; (of similarly classifi	ed sites w		has old	nettecti	ve dition		(f), Diked
	known	Rar	ithin the same Major I re	Common	d Basin, se	ee definitions) Abunda	-	
	(use matrix below to d	Rar	ithin the same Major I re circle] appropriate res	Vontana Watersho Common	ed Basin, se	ee definitions} Abunda	nt	
General condition of AA: Regarding disturbance:	(use matrix below to d	etermine (c	circle] appropriate res Predominantly as in not grazed, hayed, otherwise converted;	common Co	facent to (v	Abunda within 500 feet of) Used cultivate indicating or by	AA d or heavily graze stantial fill places devilogical attenti	nd or loggest
General condition of AA: I. Regarding disturbance; Conditions within A occurs and is managed in predominant azed, hayed, logged, or otherwise convented or occupied buildings.	(use matrix below to d AA y natural state; is not ted, does not contain	Ran etermine (c Land man natural sta logged, or does not o low disth	ithin the same Major I re circle] appropriate res Predomi aged in predominantly ris, in not grazed, hayed, otherwise converted, oritain roads or buildings, urbance	common Co	jacent to (M but moderate) electively logs to minor clear or buildings.	Abunda Abunda	AA d or heavily graze stantial fill placen drological attenti may	nd or loggest next grading ion; high road
2. General condition of AA: I. Regarding disturbance: Conditions within A occurs and is managed in predominant, razed, hayed, logged, or otherwise convertieds or occupied buildings. A not outbysted, buildings or occupied buildings or occupied buildings.	(use matrix below to di AA y natural state; is not ted, does not contain hayed or selectively not clearing, fill	Ran etermine (c Land man natural sta logged, or does not o low disth	ithin the same Major I re circle] appropriate res Predomi aged in predominantly res; in not grazed, hypid, otherwise converted, contain reads or buildings, urbanoce	common Co	jacent to (M but moderate) electively logs to minor clear or buildings.	Abunda Abunda Athin 500 feet of) Und cultivate act subject to sub- ing: charing, or by or building der	AA d or heavily graze stantial fill placen drological attenti may	nd or loggest next grading ion; high road
2. General condition of AA: 1. Regarding disturbance; Conditions within A occurs and is managed in predominant razed, hayed, logged, or otherwise convented or occupied buildings. A not outhwated, but moderately grazed or good, or has been subject to relatively min locement, or hydrological alteration; contact A cultivated or heavily grazed or logged; a substantial fill placement, grading, clearing,	(use matrix below to di AA y natural state; is not ted, does not contain hayed or selectively not clearing, fill ins few roads or buildings subject to relatively	etermine (c Land man natural sta logged, or does not o low disth	ithin the same Major I re circle] appropriate res Predomi aged in predominantly ris, in not grazed, hayed, otherwise converted, oritain roads or buildings, urbance	common Co	jacent to (which moderate) to minor clear or buildings.	Abunda Abunda	AA d or heavily graze stantial fill places developical attention issturbance bance	nd or loggest next, grading on; high row
2. General condition of AA: 1. Regarding disturbance; Conditions within A occurs and is managed in predominant razed, hayed, logged, or otherwise convented or occupied buildings. A not outhwated, but moderately grazed or good, or has been subject to relatively min locement, or hydrological alteration; contact A cultivated or heavily grazed or logged; a substantial fill placement, grading, clearing,	(use matrix below to di AA y natural state; is not ted, does not contain hayed or selectively not cleaning, fill ins few roads or buildings subject to relatively, or hydrological alteration, bance, Intensity, seaso	etermine (c Land man natural sta logged, or does not o low dish moderat high dish	ithin the same Major I re circle] appropriate res Predomi special predominanty to; in out grazed, hayed, contain reads or buildings, predominance turbance turbance	common ponse) nant conditions and Land not calibrated, grazed or has been subject contains few roads low disturbance moderate distur high disturbance	facent to (no but moderate) selectively logs to minor clear or buildings.	Abunda within 500 feet of) Land cultivate out, out to sub- ing, or building de- moderate d high disturt	AA d or heavily graze startial fill places developical attents may issturbance bance	nd or loggest next, grading on; high roa
A occurs and is managed in predominants axed, hayed, logged, or otherwise convert ased, hayed, logged, or otherwise convert ased or occupied buildings. A not outbristed, but moderately grazed or goed, or has been subject to relatively mis append, or hydrological alteration; contai A cultivated or heavily grazed or logged, a abstantial fill placement, grading, clearing, igh road or building density. Comments: (types of disturt ill, Prominent weedy, allen,	(use matrix below to di AA y natural state; is not ted, does not contain hayed or selectively not cleaning, fill ins tew roads or buildings subject to relatively, or hydrological alteration, bance, intensity, seaso & introduced species	etermine (c Land man natural sta logged, or does note low dista moderat high dis- on, etc.):_c es (Includ	ithin the same Major I re circle] appropriate res Predominate on predominate residence on the standard of buildings. urbance turbance turbance turbance turbance turbance	common ponse) ponse) pant conditions and Land not cultivated, grazed or hayed or a or hayed or a contains few roads. Involve a disturbance (moderate disturbance) trives teck: stilicated, ferall): (i	jacent to (who but moderately be to minor clear or buildings bance) e cine end ist)	Abunda within 500 feet of) y Land cultivate subject to subject	AA d or heavily grace drively in a finite place drively call attends maky. bance bance bance	od or logged one by states on high roa
2. General condition of AA: 1. Regarding disturbance; a Conditions within Conditions of the Condition	y natural state; is not ted, does not contain hayed or selectively not clearing, fill into terr toads or buildings subject to relatively, or hydrological atteration, bance, intensity, season & Introduced species summary of AA and terrating processing than a season of the summary of AA and the summary of AA	etermine (c Land man natural sta logged, or door not o low distri moderal high dis- on, etc.): es (Includ	ithin the same Major I re circle] appropriate res Predomi sped in predominantly re; in not grazed, hayed, consumer converted, consumer converted	ponse) ponse) ponse) pant conditions and Land not cultivated, grazed or hayed or a or has been subject contains few roads low disturbance (moderate distur high disturbance trives teck sticated, feral): (i) tat: 'wiethand ne periodic in a	jacent to (Management to (Management to (Management to (Management to management to ma	Abunda within 500 feet of y Land cultivate subject to sub- charing, or not or building de- moderate d high disturt high disturt	AA d or heavily graze stantial fill places developical attention into bance bance d wareto	of or logged on high roa
2. General condition of AA: 1. Regarding disturbance; a Conditions within Conditions within A occurs and is muraged in predominant razed, hayed, logged, or otherwise convert sads or occupied buildings. A not outhwated, but moderately grazed or ogged, or has been subject to retatively mill appearant, or hydrological alteration; contains the cultivated or heavily grazed or logged; a ubstantial fall placement, grading, clearing, ligh road or building density. Comments: (types of disturbility, Prominent weedy, allen, lill, Provide brief descriptive, and in and in an afficiency of the moderately allen, lill, provide brief descriptive, and in and in an afficiency.	y natural state; is not ted, does not contain thayed or selectively not dearing, fill ins terr roads or buildings subject to relatively, or hydrological alteration, bance, intensity, seaso & introduced species summary of AA are	etermine (classification) Land mannetral state logged, or does note low disthermoderate high distance, etc.): Ges (Included surrounds)	ithin the same Major Ine circle] appropriate res Predominate on the same of	ponse) ponse) ponse) ponse) pant conditions ad Land not cultivated, grazed or hayed or or hayed or or hayed or or has toen subject contains few roads. Investment fight disturbance product ferall; (if the product is the product in the product is the product in the prod	facent to (we but moderately to minor clear or buildings. bance) e cine end ist)	high disturt high disturt cressing / reaching or moderate d high disturt high disturt cressing / reaching or moderate d high disturt cressing / reaching or moderate d cressing / reaching or moderate d high disturt	AA d or heavily graze stantial fill places developical attention into bance bance d wareto	od or logged on high row
2. General condition of AA: I. Regarding disturbance; Conditions within A occurs and is managed in predominant frazed, hayed, logged, or otherwise convent cads or occupied buildings. Unnot outbrated, but moderately grazed or opped, or has been subject to relatively min blacement, or hydrological alteration; contain the cultivated or heardly grazed or logged; a substantial fill placement, grading, clearing, high road or building density. Comments: (types of disturt ill, Prominent weedly, allen, Ill, Provide brief descriptiv Guid in and is indifficulties. 13. Structural Diversity: (based	y natural state; is not ted, does not contain thayed or selectively not dearing, fill ins terr roads or buildings subject to relatively, or hydrological alteration, bance, intensity, seaso & introduced species summary of AA are	etermine (classification) Land mannetral state logged, or does note low disthermoderate high distance, etc.): Ges (Included surrounds)	ithin the same Major Ine circle] appropriate res Predominate on the same of	common ponse) ponse) pant conditions and Land not cultivated, grazed or hayed or a or has toen subject contains few roads. Investment still disturbance trives teek. still att. trives teek. still att. for not include un	facent to (who but moderate) to minor clear or buildings. bance end ist) on or clear or buildings.	high disturt high disturt crossing / reached and could be subject to subje	AA d or heavily grace drategial fill place drategical attention issturbance bance bance drategical attention bance bance bance	nd or logged one high roo

Comments:



SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

Habitat for Federally AA is Documented (D) Primary or critical habit Secondary habitat (list	or Sus tat (list	spected specie	1 (S) to co	onta C C	iin (circl	le one l	based o	n de	finitions			rstru	ctions):							
incidental habitat (list : No usable habitat	specie	s)			ၜၟႄႜ	_B	NG €	بياد												
II. Rating (use the conclus	sions fro	om i ab	ove and	the	matrix t	pelow to	o arrive	at [c	ircle] the	funct	ional po	ints a	and ratio	ng (H =	high, M	M = m	noderat	e, or L	= low] fo	01
Highest Habitat Level		doc./pr	imary	1	sus/prin	arv	doc./	seco	econdary		sus./secondary		doc	:/incidental		sus /incidenta		tal	None	
Functional Points and Rat		***		7	9 (H)		.8 (N			.7 (1			.5 (1		1	(3 (L	-		0 (L)	
Sources for documented us	e (e.g.	observ	ations, re			:								-,					, O(L)	-
14B, Habitat for plant or a i. AA is Documented (D) Primary or critical habit Secondary habitat (list Incidental habitat (list No usable habitat II. Rating (use the conclust this function)	or Sustat (list tat (list t specie specie	spected speci- es) s)	i (S) to c es)	onta	Sin (circ S S S S S S S S	le one	based of tent (1) tent (1)	in de	finitions Te	conta	tan 's l	nstru	ctions)					•	= low] f	for
Highest Habitat Level		doc./pr	rimary	T,	sus/primary		doc.	/seco	ndary	sus./secondary doc./incident				ental	sus	/incider	ntal	None	е	
Functional Points and Rat	ting	1 (H)		Τ.	.8 (H)		(.7 (N	9/		.6 (M) .2 (L)						.)		0 (L)		
Sources for documented us			rations, re):		9		1	,					., 1			1 0 10	
i. Evidence of overall wild is. Evidence of overall wild observations of abundabundant wildlife sign presence of extremely interviews with local bit.	dlife us of the ant wild such a limiting ologists	following follow	ng [check or high s tracks, n at feature onowledg	()): speciest s no e of	cies div structu ot availa	ersity (res, ga ble in t	during :	any p	eriod)		Low ((base w or r le to r arse	d on ar to wildli no wildli adjacer	ny of the fe observed ife sign	e follow ervation i nd food piologist	s dur	ing pea	k use p		
Moderate (based on any of observations of scatter common occurrence of adequate adjacent uplinterviews with local bit	red wik of wildlif and foo	dlife gro le sign od sour	oups or in such as ces	sca	t, tracks	s, nest						ds								
ii. Wildlife habitat feature (L) rating. Structural divers of their percent composition seasonal/intermittent; T/E =	sity is fi n of the	AA (se	3. Forcl ee#10).	ass Abt	cover to	o be co ns for	onsidere surface	ed ev	enly dis er durati	tribute ons ar	d, veget e as foll	ated lows:	classes P/P = p	s must permar	be with ent/per	in 20	% of ea	erate (N ch othe	/I), or lo er in ten	ms
Structural diversity (see #13)				Hiç				. ď.					rate			\neg		Lov	ν	2
Class cover distribution (all vegetated classes)		Eve	n			Unev	en	7		Eve	D	_		Unev	en			Eve	n	
Duration of surface water in ≥ 10% of AA	P/P	SA	T/E	A	P/P	S/I	T/E	Α	(M)	S/I	T/E	A	P/P	SA	T/E	Α	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	Е	н	E	E	Н	Н	Е (н	Н	М	E	Н	М	М	E	н	М	M
Moderate disturbance at AA (see #12i)	Н	Н	Н	Н	Н	Н	Н	М	\odot	н	М	М	Н	M	М	L	н	М	L	L
High disturbance at AA	М	M	М	L	M	М	L	L	M	М	L	L	М	L	L	L	L	L	L	1

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)							
	Exceptional	(High)	Moderate	Low				
Substantial	1 (E)	(9 (H))	.8 (H)	.7 (M)				
Aoderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)				
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)				

Comments:

(see #12i)



14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish (i.e., fish use is precluded by perched culvert or other barrier, etc.). If the AA is not or was not histonically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective (such as fish use within an irrigation canal), then Habitat Quality (i below) should be marked as "Low", applied accordingly in it below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating

Duration of surface water in AA	Perm	nament / Pero			onal / interm		Temporary / Ephemeral			
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%	
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	н	Н	Н	М	М	м	М	
Shading - 50 to 75% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	Н	н	М	М	м	М	М	Ĺ	L	
Shading - < 50% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	н	М	М	М	L	L	L	L	٤	

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?

Y N Modified habitat quality rating = (circle) E H M L

III. Rating (use the conclusions from I and II above and the matrix below to arrive at (circle) the functional points and rating [E = exceptional, H = high, M =

moderate or L = low) for this function)

Types of fish known or		Modified Habit		
suspected within AA	Exceptional	High	Moderate	Low
Native game fish	1 (E)	9 (H)	.7 (M)	.5 (M)
introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)
Non-game fish	.7 (M)	.6 (M)	.5 (M)	,3 (L)
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)

Comments:

NΑ

14E. Flood Attenuation; (applies only to wetlands subject to flooding via in channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

Estimated wetland area in AA subject to periodic flooding		2 10 acres	>		10, >2 acre	s		acres ·	
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	(<25%)	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	.2(L)
AA contains unrestricted outlet	.9(H)	.8(H)	(5(M))	.7(H)	.6(M)	4(M)	.3(L)	2(1)	1(1)

II. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? Y N Comments: County Road, I Residence

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or t. = low] for this function. Abbreviations for surface water durations are as follows; P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see

nstructions for further definitions of these terms])

Estimated maximum acre feet of water contained in wellands within the AA that are subject to periodic flooding or ponding	T	5 acre fe	D	<	5, >1 acre f	eet	:	s1 acre foo	Carlot S
Duration of surface water at wetlands within the AA	(P/P)	SA -	T/E	P/P	SA	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	(H)))	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	3(L)	2(L)
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. Waterbody on MDEQ list of waterbodies in nutrients, or for probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to development for "probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to development for "probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to development for "probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to development for probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of surrounding land use with potential to development for probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to development for probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to development for probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to development for probable causes' related to nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high levels of surrounding land use with potential to deliver high land use with potential land u							
% cover of wedand vegetation in AA	≥ 7	70%	[E7	0%)	nutrients or toxic ≥ 70		< 7	
Evidence of flooding or ponding in AA	Yes	No	(Yes)	No	Yes	l No	Yes	No
AA contains no or restricted outlet	1 (H)	.8 (H)	(7 (M))	.5 (M)	.5 (M)	.4 (M)	.3 (L)	2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)



14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which has a maximum depth exceeding 6.6 ft, at 'ow water (e.g. subject to wave action). If does not apply sincle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or t. = low) for this function.

% Cover of wedand streambank or	Duratio	Duration of surface water adjacent to rooted vegetation								
shorefine by species with deep, binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral							
≥ 65%	1 (H)	.9 (H)	.7 (M)							
35-64%	.7 (M)	.6 (M)	.5 (M)							
< 35%	.3 (L)	.2 (L)	.1 (L)							

Comments:

141. Production Export/Food Chain Support:

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

T/E /A= temporary/ephemeral or absent (see instructions for further definitions of these terms).)

14J. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)

A		Vegetated component >5 acres)					Vegetated component 1-5 acres							Vegetated component <1 acre					
В	Hi	gh	CMode Mode	ecate>	L	ow	Hi	gh	Mod	erate	Lo	w	Hi	gh	Mod	erate	Lo	w	
C	Yes	No	(Yes)	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
P/P	1H	.9H	Ð	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L	
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.31.	.3L	.2L	
TIEI	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	,5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L	
A			1							Ĺ			1						

Comments:

I. Discharge Indicators Springs are known or observed Vegetation growing during dormant season/drought Wetland occurs at the toe of a natural slope Seeps are present at the wetland edge AA permanently flooded during drought periods Wetland contains an outlet, but no inlet Cother	II. Recharge indicators Permeable substrate present without underlying impeding layerWetland contains inlet but no outletOther
III. Rating: Use the information from i and ii above and the table below	to arrive at [circle] the functional points and rating [H = high, L = low] for this function.
Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/R	present (1(H))

1	C.M.J.IC	. I direction of diffs and reading
	AA is known Discharge/Recharge area or one or more indicators of D/R present	(1(H))
	No Discharge/Recharge indicators present	.1 (L)
	Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

luncuon.										
Replacement potential	mature (>80	fen, bog, warm yr-old) forested	wetland or	rare types	ot contain pre and structu	AA does not contain previously cited rare types or associations				
	plant associ	ation listed as.* MNHP	,		high or cont listed as "S2"	ains plant by the MNHP	and structural diversity (#13) is low-moderate			
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	(common)	abundant	
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	(31)	.2 (L)	
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)	

Comments:

14L. Recreation/Education Potential: I. Is the AA a known rec/ed. site: (circle) Y(N)(If yes, rate as [circle] High [1] and go to ii; if no go to iii)

ii. Check categories that apply to the AA: ___Educational/scientific study; 🗶 Consumptive rec.; 🗶 Non-consumptive rec.; ___Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec_led. use? (if yes, go to ii, then proceed to iv; if no, then rate as [circle] Low [0.1])

v. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function

Ownership	to arrive at jointle june functional points an	Disturbance at AA (#12)	- low flot this function.
	low	moderate	high
public ownership	1 (H)	.5.(M)	.2 (L)
private ownership	.7 (M)	(.3(L))	.1 (L)



FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	0.3		1	
B. MT Natural Heritage Program Species Habitat	0.7		1	
C. General Wildlife Habitat	0.9		1	
D. General Fish/Aquatic Habitat	AM		NA	
E. Flood Attenuation	0.5		1	
F. Short and Long Term Surface Water Storage	1.0		1	
G. Sediment/Nutrient/Toxicant Removal	0.7			
H. Sediment/Shoreline Stabilization	NA		NA	
Production Export/Food Chain Support	0.9		1	
J. Groundwater Discharge/Recharge	1.C		1	
K. Uniqueness	c-3		1	
L. Recreation/Education Potential	0.3		1	
Totals:	6.6		10	

6.6/100 = 66%

Evaluation Date: Mo, O	7 Day 29 Yr. 99 4. E	valuator(s):	C. Cabar	5 . Wet	lands/Site	#(s)_	Site #2-	DRawe	d oxfor
Wetland Location(s): i, Lo	9 Day 29 Yr. 99 4. E egal: T 32 N br S; R 21 or Mileposts:	_(E)cr W; S	NE 1/4	:⊺ .32. €	brS;R_Z	L®	v W; S	NW 1/9	·:
iii. Watershed: 10 Other Location Inform	050004 GPS ation: Watershed	Reference No.	o. (if applies):						
a. Evaluating Agency: _ b. Purpose of Evaluation	mDT/Lavdounce n: ally affected by MDT project ds; pre-construction	8. Wetla t 9. Asses	nd size: (total a	cres)	(me	asureo	stimated) d, e.g. by GPS (visually estimations)	ated)	
4. V Other - Draik	ved ox bow	566 111511	octions on oeter	ining \sim		٠ ١	ineasured, e.g	g. by GF 5 (ii	applies])
Classification of Wetlan	nd and Aquatic Habitats is	n AA (HGM ac	cording to Brinso	on, first col.; USF	WS accord	ling to	Cowardin [19	79], remainir	ng cols.)
IGM Class	System	Su	bsystem		Class	W	ater Regime	Modifier	% of AA
Riverihe	Palvsteine				UB		m Flooded		20
Riverine	Palus treine				5/5	F	wooded	0	107
Riverine	Palustrine				EM	1	conved	F	60%
Riverine	Riverbe	14	wer Peres	wial	En	E	looded	E	10 7
ergent Wei and (EM), Scrut-Shru EM System: Riverine (RV Subs mittenby Exposed (G), Semiperm Parity Drained (PD), Farmed (F), Estimated relative abur	istrine(P)/ Subsyst: none/ Classes b Wetland (SS). Forested Wetland lyst: Lower Perennial (2)/ Classes namently Flooded (F). Seasonally Fl Artificial (A). HGM Classes: River indance: (of similarly classifi	(FO)/ System: La : R8, UB, AB, US, I looded (C), Saturate ine, Depressional, led sites within	custine (L)/, Subsys EM/ Subsystem: Up ed (B), Temporarily F Slope, Mineral Soil F	per Perennial (3V Class per Perennial (3V Class looded (A), Intermitten lats, Organic Soil Flats Montana Watersh	es: RB, UB, Asses: RB, UB, UB, UB, UB, UB, UB, UB, UB, UB, U	AB/ Sub AB, US I) Modi Fringe	bsystem: Littoral (S/ Water Regime filers: Excavated (efinitions)	47 Classes; R6 s; Permanently (E), Impounded	B. UB, AB, Flooded (H),
rergent Wetrand (EM), Scrut-Shor , EM/ System: Riverine (RV Subs amiltently Exposed (G), Semipern , Partly Drained (PD), Farmed (F),	b Wetland (SS). Forested Wetland lyst: Lower Perennial (2)/ Classes namently Flooded (F). Seasonally FI Artificial (A). HGM Classes: River Indance: (of similarly classifi Unknown	(FO) System: La : R8, U8, A8, US, I looded (C), Saturate ine, Depressional,	custine (L)/, Subsys EM/ Subsystem: Up ed (B), Temporarily F Slope, Mineral Soil F	pt.; Limnetic (2V Class per Perennial (3V Class fooded (A), Intermitten lats, Organic Soil Flats	es: RB, UB, Asses: RB, UB, UB, UB, UB, UB, UB, UB, UB, UB, U	AB/ Sub AB, US I) Modi Fringe	osystem: Littoral (S/ Water Regime flers; Excavated (47 Classes; R6 s; Permanently (E), Impounded	B. UB, AB, Flooded (H),
eigent Wei and (EM), Scrue-Shou, EM System: Riverine (RV Subsormittently Exposed (G), Semiperm, Partly Drained (PD), Farmed (F), Estimated relative abur (Circle one) Comments: General condition of Av. i. Regarding disturba	b Wetland (SS). Forested Wetland yst.: Lower Perennial (2)/ Classes namently Flooded (F). Seasonally Fl Artificial (A). HGM Classes: River indance: (of similarly classifi Unknown A: nce: (use matrix below to design to the content of the classification).	(FOV Systems La RB, UB, AB, US, looded (C), Saturatione, Depressional, lied sites within Rare	custine (LV, Subsystem: Up of (B), Temporarily F Slope, Mineral Soil F the same Major	ponse)	es; RB, UB, J sses; RB, UB, dy Flooded (J s, Lacustrine I and Bassin,	AB/ Sub AB, US I) Modi Fringe	esystem: Littoral (57 Water Regime filers: Excavated (efinitions) Abundan	(4) Classes; RE is: Permanently (E). Impounded	B. UB, AB, Flooded (H),
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ergent Wetland (EM), Scruc-Shou EM System: Riverine (RV Subsimilarities) Exposed (G), Semiperm Partly Drained (PD), Farmed (F), Estimated relative abur (Circle one) Comments: General condition of Ai i. Regarding disturba Conditions to Conditions to coccurs and is managed in predon add, hayed, logged, or otherwise of distribution of hayed, logged, or otherwise of distribution or nyorological eleration cultivated, but moderately graged; or has been subject to relative cement, or nyorological eleration cultivated or heaving grazed or log into road or building density. Comments: (types of c iii. Provide brief descr and adda.wei and followers Structural Diversity: (b)	b Wetland (SS). Forested Wetland ryst: Lower Perennial (2) Classes nanently Flooded (F). Seasonally Fi ndance: (of similarly classifi Unknown A: nco: (use matrix below to dewithin AA minantly natural state, is not converted; does not contain nazed or hayed or selectively rely minor clearing, fill recontains few roads or buildings pyed, subject to relatively learing, or hydrological alteration; disturbance, intensity, seasonalien, & Introduced species	#FOV System La RB, UB, AB, US,	custine (LV, Subsystem: Up EW Subsystem: Up of (B), Temporarily F Slope, Mineral Soil F the same Major The sa	ponse) Montana Watersh Common Montana Watersh Common Donse) Mant conditions act Land not cultivated grazed or hayed or or has been subject contains few mads. Icw disturbance moderate disturbance middle disturbance m	discent to but moderat selectively lot to minor cle or buildings. Thance Thance Thance	AB/ Sub, AB, US AB, US Modification See de (within ely gged, aring; ACA Class ated class	efinitions) Abundan 500 feet of) A Land cultivated subject to substiceaning, or hydror building dens moderate distributions (high disturbed subject to substiceaning or hydror building dens moderate distributions (high disturbed subject to substiceaning or hydror building dens moderate distributions (high disturbed subject to substiceaning or hydror building dens moderate distributions (high disturbed subject to substiceaning or hydror building dens moderate distributions (high disturbed subject to subject to substiceaning or hydror building dens moderate distributions (high disturbed subject to subject to subject to subject to substiceaning or hydror building dens moderate distributions (high disturbed subject to subject	AA or beavily graze tancel fill placen rological alterability sturbance ance	River quanto



SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

 Habitat for Federally Listed or Proposed AA is Documented (D) or Suspected (S) to o Primary or critical habitat (list species) Secondary habitat (list species) 			contai D	in (circle	one t	eased or	defi	initions	contai	ned in ir	nstru	ctions):									
Secondary habitat (list Incidental habitat (list s No usable habitat				D	S S	B	Id e	9/1	e, 1	nova	4x,b	P	lover		_						
II. Rating (use the conclusion)	ions fro	om i ab	ove and	the r	matrix bei	low to arrive at [circle] the functional points and rating [H = high,							high, M	gh, M = moderate, or L			= low] for			
Highest Habitat Level		doc./pr	imary	s	us/prima	ry	doc./s	econ	dary	sus.	/second	lary	doc.	/incide	ntal	sus.	/inciden	tal	No	ne	
Functional Points and Rational Points and Rati	ing	1 (H)		2.	9 (H)		.8 (M))		.7 (1	M) .		.5 (1			(3 (L	0		100	L)	
I. AA is Documented (D) Primary or critical habit Secondary habitat (list Incidental habitat (list a No usable habitat	or Sus tat (list species	rated spected species) es)	51, 52, I (S) to (conta D D D	in (circle) S) S) S	GA	based or	atura n defi	initions He	contai	Great Great	: (no	rinclud uctions): fr f	ing spe	ad	tea ii	114A ac	xove)			
this function) Highest Habitat Level	T	doc./pr	imary	T _s	us/prima	rv	doc./s	secon	ndarv	sus	/second	larv	doc	/incide	ntal	sus.	/inciden	ntal	T _N	one	٦
Functional Points and Rati					8 (H)	.,	.7 (M			.6 (,2 (1			.1 (1		.,,,,,		L)	7
as potentially to	wd	W 72	ations, i	Econ econ	ds. etc.): + ace	A	Van b	es o	SIN	sec.		er	e role	11.1	f p	·v	The .	MA	146	7	ice.
14C. General Wildlife Hab I. Evidence of overall wild Substantial (based on any observations of abunda abundant wildlife sign s presence of extremely	pitat Radilfo us of the ant wild such as	ating: se in the following flife #'s s scat, habita	ne AA (de or high tracks, t feature	circle (k]): spec nest:	substant cies divens structures	ial, m	noderate during a	or lo	ow bas eriod)	e H	Low (ng e base v or i e to	e ide): by of the fe observed fe sign at uplar	follow rvation:	ing (o	check]): ing peal	k use	Periox	d d	Sice.
14C. General Wildlife Hab I. Evidence of overall wild Substantial (based on any observations of abunda abundant wildlife sign s	oitat Radilfe us of the ant wild such as limiting ologists of the fored wild f wildlife and foo	ating: se in the following flife #'s s scat, g habita s with k flowing flife gro fe sign: sd source	ne AA (or high tracks, it feature nowledge [check kups or issueh as ces	circle (k]): speci nest: es no ge of): ndivides scat	substant sies divers structure t available the AA duals or r t, tracks, r	sity (os, gare in the	GA GA noderate during a me trails he surro	ny pe s, etc. xundir	ow bas eriod) ing area	ed on s	supporti Low (few inter sps inter	ng e base v or i e to erse ervie	vidence ed on an no wildling adjacen): by of the fe observed fe sign at uplar	follow rvation:	ing (o	check]): ing peal	k use	Periox	d d	hoe
as pateur 1/1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1	oitat Radilfe us of the ant wild such as limiting ologists of the for red wild of wilding and foo ologists s (work sity is fre	ating: se in the following filing #'s s scat, habita s with k following fire gro de sign: A source s with k following fire gro de sign: A source from #1: AA (see	ne AA (or high tracks, it feature nowleds (check kups or is such as ces nowleds). For ce #10).	k]): specinest: specinest: ss no ge of ndividual scat botto lass Abb	substant substant structures t available the AA duals or r t, tracks, r the AA orn, circle cover to b	ial, m sity (c s, ga e in th elativ nest s	during a me trails he surro	ny pe ny pe i, etc. speci es, ga AA at d eve	ow baseriod) ing area ies durame tra	ing peails, etc	Low ((Low () few inte spa inte ak period atrix to a d, vegeta e as folk	base voringe to eto arse ervie	widence and on an ano wildir ano wildir adjacer ws with	continued to the contin	e follow rivation: d food iologist: (E). his be within	ing [of sources with several s	check]); ing peal ces n knowk	k use ; edge c	period of the	dis AA	
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as pateur 1/1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1	oitat Radilfe us of the ant wild such as limiting ologists of the for red wild of wilding and foo ologists s (work sity is fre	ating: se in the following filing #'s s scat, habita s with k following fire gro de sign: A source s with k following fire gro de sign: A source from #1: AA (see	ne AA (or high tracks, it feature nowled; [check kups or it souch as test in top to 3. For or e #10). hernera	kij): specinest; ss no ge of): ndivivi scat botto: lass Abb	substant sies divers structure t available the AA duals or r t, tracks, r the AA om, circle cover to b reviations d A = abs	ial, m sity (c s, ga e in th elativ nest s	during a me trails he surro ely few structura copriate ensidere surface elections.	ny pe ny pe i, etc. speci es, ga AA at d eve	ow baseriod) ing area ies durame tra	ing peails, etc	Low (I Lo	ng e vor i e to e to e to e to e to e to e to e to	widence and on an ano wildling adjacer ws with at excectasses P/P = p f these	continued to the contin	e follow rivation: d food iologist: (E), his be within	ing [of sources with several s	check]); ing peal ces n knowk	k use : edge o	period of the	dis AA	
as patential (1) 180. 14C. General Wildlife Hab I. Evidence of overall wild Substantial (based on any observations of abundar abundant wildlife sign s presence of extremely interviews with local bid Moderate (based on any of observations of scatter- common occurrence of adequate adjacent upla interviews with local bid ii. Wildlife habitat features (L) rating. Structural divers of their percent composition seasonal/intermittent: T/E = Structural diversity (see #13) Class cover distribution (all vegetated classes)	oitat Radilfe us of the ant wild such as limiting ologists of the for red wild of wilding and foo ologists s (work sity is fre	ating: se in the following filine #'s s scat, habitas with k klowing filine gro d source s with k ing from AA (se rary/ep	ne AA (or high tracks, it feature nowled; [check kups or it souch as test in top to 3. For or e #10). hernera	kij): specinest; ss no ge of): ndivivi scat botto: lass Abb	substant sies divers structures t available the AA duals or r t, tracks, r the AA om, circle cover to b reviations d A = abs	elative especies of second sec	during a me trails he surro ely few structura copriate ensidere surface elections.	ny pe s, etc. undir species, ga AA at d eve water	ow baseriod) ing area ies durame tra	ed on sing periods in matributer ons are further	Low (I Lo	ng e vor i e to e to e to e to e to e to e to e to	widence and on an ano wildling adjacer ws with at excectasses P/P = p f these	eptionaa must bermanterms]	e follow rivation: d food iologist: (E), his be within	ing [of sources with several s	check]); ing peal ces n knowk	k use dedge of the choth	period of the	ds	

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = level for this function).

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Moderate disturbance

at AA (see #12i) High disturbance at AA

(see #12i)

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H H

L

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М

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Evidence of wildlife use (i)	nettorij	Wiidlife habitat features rating (ii)									
	Exceptional	High	Moderate	Low							
bstantialur	1 (E)	.9 (H)	.8 (H)	C7 (N)							
oderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)							
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)							

Comments: Area is Utilized by a number of wildlife species, but it is also subject to agricultural practices, Therefore the rating is moderate.



14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish (i.e., fish use is precluded by perched culvert or other barrier, etc.). If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective (such as fish use within an irrigation canal), then Habitat Quality (i below) should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.

, uration of surface water in AA	Perm	nament / Pere			onal / Intern		Temporary / Ephemeral			
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10–25%	<10%	
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	н	Н	Н	М	М	М	M	
Shading – 50 to 75% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	н	H	М	М	М	М	М	L	L	
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	н	W.	М	М	L	L	L	L	L	

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?

N Modified habitat quality rating = (circle) E H M (L')

iii. Rating (use the conclusions from a and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = lowl for this function)

Types of fish known or	Modified Habitat Quality (ii)								
suspected within AA	Exceptional	High	Moderate	Low					
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)					
Introduced game fish	.9 (H)	.8 (H)	6 (M)	.4.(M)					
Non-game fish	.7 (M)	.6 (M)	.5 (M)	(.3 (L))					
No fish	5 (M)	3(1)	2(1)	777					

Comments: Fish usage of the AA is severely limited by a perched culvert + massive headers Caused by aitching and draining of the tributary to be with first food Attenuation: (applies only to wetlands subject to flooding via in-chaptiel or overbank flow. If wetlands in AA are not flooded from in-channel or thing generally flow or contains flow of the contains and proceed to next function.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

Estimated wetland area in AA subject to periodic flooding		≥ 10 acres		-	10, >2 acres	5	≤2 acres			
of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	1 25-75%	<25%	
contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	1 .3(L)	.2(L)	
AA contains unrestricted outlet	.9(H)	.8(H)	(.5(M))	.7(H)	.6(M)	.4(M)	.3(L)	1 .2(L)	.1(L)	

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? (Y) N Comments: County Road and Residences along Milk River downstream of site. Some wordy regetation within HA, but majority hay field a cryptand.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at (circle) the functional points and rating [H = high, M = moderate, or L = low) for this
function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see
instructions for further definitions of these terms].)

instructions for further definitions of these terms.)											
Estimated maximum acre feet of water contained in wetlands	1	>5 acre fee	t	<:	, >1 acre fe	et	≤1 acre foot				
within the AA that are subject to periodic flooding or ponding	1										
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E		
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	SEMI I	.3(L)	1 .2(L)		
Wetlands in AA flood or pond < 5 out of 10 years	(H)9.	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	(3(L))	.2(L)	1 .1(L)		

comments: With The construction of a New dill structure storage will be longer in duration, however, curretly The site drains quickly due to ditches.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver low or comp substantially	to moderate le counds such the y impaired. Mis s or toxicants,	ing land use wi evels of sedime hat other function nor sedimentat or signs of eut esent.	ents, nutrients, ons are not ion, sources of	nutrients, or co	r 'probable caus cants or AA rec ntial to deliver his empounds such spaired. Major se	ses' related to eives or surro gh levels of se that other fun edimentation.	sediment, unding land ediments, ctions are sources of	
over of wetland vegetation in AA	≥ 7	70%	<	70%	≥ 70	%	< 70%		
dence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	I (Yes)	No.	
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M) I	.7 (M) .5 (M)		.4 (M)	1 .3 (L)	.2 (L)	
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	(2(1)	.1 (L)	

Comments: As The AA contains Musquave lake and is surewooded by agricultural fields + pastones it does decieve while the world, unfortunately due to The ditching - no sediments/Notaients are captured.

14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

i. Rating (working from top to bottom, use the matrix below to arrive at (circle) the functional points and rating (E = exceptional, H = high, M = moderate, or L

"Cover of wetland streambank or	Duration of surface water adjacent to rocted vegetation										
oreline by species with deep, unding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral								
≥ 65%	1 (H)	.9 (H)	.7 (M)								
35-64%	7.04	.6 (M)	.5 (M)								
< 35%	(3,15)	(2 (L)	.1 (L)								

The area around the dra, wage ditch is severely head out and in weed of STA 6/11 tation water flows Through The system year round?

141. Production Export/Food Chain Support:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E /A= temporary/ephemeral or absent (see instructions for further definitions of these terms).)

Α	Vegetated component >5 acres						1	Vegeta	ted comp	conent 1	5 acres	Vegetated component <1 acre						
B	Hi	gh	Mode	erate	(₩)	Hi	High Modera		erate	ate Low		High		Moderate		Low	
C	Yes	No	Yes	No	(Yes)	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	H8.	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	(7M)	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	1 .2L
T/E/	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
Α					1					1								

comments: ASThe drainings ditch carries all nuroff to the Milk River theme is a moderate level of food chain support outside the AA, but a low level within theAA.

4J. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)	
45. Groundwater bischargerRecharge: (Check the Indicators in L& II below that apply to the AA)	
i. Discharge Indicators Ii. Recharge Indicators	
Springs are known or observedPermeable substrate present without underlying impeding to	ayer
Vegetation growing during dormant season/drought	
Wetland occurs at the toe of a natural slopeOther	
Seeps are present at the wetland edge	
AA permanently flooded during drought periods	
Wetland contains an outlet, but no inlet	
Other	
Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating (H = high, L = l	low) for this function

Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	(N/A (Unknown))

It is NOKNOWN as to whether the area serves as a kechange /dischunge area for grownshunter as it is differed and dealwed Comments:

14K. Uniqueness:

 Rating (working from top to bottom, use the matrix below to arrive at (circle) the functional points and rating [H = high, M = moderate, or L = low) for this function.

Replacement potential	AA contains f	en, bog, warm	springs or	AA does no	ot contain pre	eviously cited	AA does not contain previously					
	mature (>80 y	r-old) forested	wetland or	rare types	and structu	ral diversity	cited rare types or associations					
	plant associa	tion listed as *	S1" by the	(#13) is	high or cont	ains plant	and structural diversity (#13) is					
		MNHP		association I	isted as "S2"	by the MNHP	low-moderate					
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant			
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)			
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)			
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L) .2 (L) .1 (L)					

A Number of drawed and themed historic oxbows of The Milk River can be found in The Region, Therefore it is not unique.

14L. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y (N) (If yes, rate as [circle] High [1] and go to ii; if no go to iii)

ii. Check categories that apply to the AA: ___Educational/scientific study, ___Consumptive rec.; ___Non-consumptive rec.; ___Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec.led. use?(Y) N (If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

iv. Rating (use the matrix below to arrive at foircle) the functional points and rating [H = high, M = moderate, or L = low) for this function.

Ownership	Disturbance at AA (#12i)										
	low	moderate	high								
alic ownership	1 (H)	.5 (M)	.2 (L)								
private ownership	.7 (M)	.3 (L)	(1(L)')								

The area is in private ownership and has Not had much education/recuration vange due to past agricultural practices.



FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0,3	1	
B. MT Natural Heritage Program Species Habitat	MODERATE	0.7	1	
C. General Wildlife Habitat	MODERATE	.7	1	
D. General Fish/Aquatic Habitat	Low	0.3	1.	
E. Flood Attenuation	MODERATE	0.5	1	
F. Short and Long Term Surface Water Storage	LOW	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	LOW	0. Z	1	
H. Sediment/Shoreline Stabilization	LOW	0.2	1	
I. Production Export/Food Chain Support	MODERATE	0.7	1	
J. Groundwater Discharge/Recharge	N/9	NIA	+	
K. Uniqueness	LOW	011	1'	
L. Recreation/Education Potential	COW	0.1	1	
Totals:	Low	4.1	11	

4.1:11 = 37%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

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ΙV

	<u> </u>
Cat	Score of 1 functional point for Uniqueness; or
	Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or
Cat	egory III Wetland: (Criteria for Categories I, II or IV not satisfied)
Cat	tegory IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy or or category III) "Low" rating for Uniqueness; and "Low" rating for Production Export/Food Chain Support; and Total actual functional points < 30% (round to nearest whole #) of total possible functional points 37.7.



Project Name: Musgsaue.								
Evaluation Date: Mo <u>09</u> Day <u>36</u>								
Wetland Location(s); i. Legal: T <u>3</u> ii. Approx. Stationing or Milepo:	2 Nor S; R 21 sts:	€ww.s	11 NE 1/4	; T N o	S; R	E or W; \$		
iii. Watershed: Other Location Information:	GPS	Reference	No. (if applies):					
a. Evaluating Agency: b. Purpose of Evaluation: 1Wetlands potentially affecte 2X_Mitigation wetlands; pre-cor 3Mitigation wetlands; post-c 4Other	ed by MDT project nstruction	9. As	stland size: (total ac sessment area: (A structions on deterr	A, tot., ac.,	(meas	ily estimated) sured, e.g. by GPS (visually estim (measured, e.	nated)	
Classification of Wetland and Address Sy	quatic Habitats in		according to Brinso Subsystem	n, first col.; USFW	/S according	ig to Cowardin [19 Water Regime	Modifier	% of A
	•				0433	Trace (teginic		2017
Johnson (Cherry rape) &	Lustine				EM	Α	PD	1000
					1		1	
report Wetland (EM), Scrub-Shrub Wetland (5 EW System: Riverine (R)/ Subsyst.: Lower mittently Exposed (G), Semipermanently Floo Partly Orained (PD), Farmed (F), Artificial (A)	\$3), Forested Wetland in Perennial (2)/ Classes: oded (F), Seasonally Fk HGM Classes: Riveri	(FO) System : RB, UB, AB, U coded (C), Sati ine, Depression	t Lacustine (LV, Subsys US, EM Subsystem: Up; unated (B), Temporarity Fi nal, Slope, Mineral Soil Fi	t.: Limnetic (2)/ Classe per Perennial (3)/ Class coded (A), Intermittent lats, Organic Soil Flats,	s: RB, UB, Al ses: RB, UB, / y Flooded (J) Lacustrine Fr	V Subsystem: Littoral AB, USV Water Regim Modifiers: Excavated inge	(4) Classes; RE es; Permanently	i, UB, AB, Flooded (H
erport Wetland (EM), Scrub-Shrub Wetland (5 EW System: Riverine (R)/ Subsyst.: Lower mittendy Exposed (9), Semipermanently Floc Partly Drained (PD), Farmed (F), Artificial (A) Estimated relative abundance: ((Circle one) Unknow Comments:	\$3), Forested Wetland Perennial (2)/ Classes: oded (F), Seasonally Fk HGM Classes: River of similarly classific	(FO) System : RB, UB, AB, U coded (C), Sati ine, Depression	t Leoustine (LV, Subsystem: Up; US, EM Subsystem: Up; urated (B), Temporarily Fi nal, Slope, Mineral Soil Fi hin the same Major I	t.: Limnetic (2)/ Classe per Perennial (3)/ Class coded (A), Intermittent lats, Organic Soil Flats,	s: RB, UB, Al ses: RB, UB, / y Flooded (J) Lacustrine Fr	V Subsystem: Littoral AB, USV Water Regim Modifiers: Excavated inge	(4) Classes; Ries; Permanently (E), Impounded	i, UB, AB, Flooded (H
erpret Wetland (EM), Scrub-Shrub Wetland (5 EM System: Riverine (R) Subsyst: Lower rmittendy Exposed (6), Semipermanently Fixe Partly Drained (PD), Farmed (F), Artificial (A) Estimated relative abundance: (6 (Circle one) Unknow Comments: General condition of AA:	SS), Forested Wetland Perennial (2)/ Classes: oded (F), Seasonally Fk HGM Classes: Riveri of similarly classified	(FO)' System: RB, UB, AB, U coded (C), Sati inc, Depression ed sites with Rare	t Lecustine (LV, Subsystem Up; US, EM Subsystem Up; unated (B), Temporarily Fi nal, Slope, Mineral Soil Fi hin the same Major I	t: timnetic (2) Classe or Perennial (3) Class or Perennial (3) Class or Perennial (3) Class orded (A), Intermittent ats, Organic Soil Flats, Wontana Watersho Common	s: RB, UB, Al ses: RB, UB, / y Flooded (J) Lacustrine Fr	St Subsystem: Littoral AB, USV Water Regim Meditiers: Excavated inge ee definitions)	(4) Classes; Ries; Permanently (E), Impounded	i, UB, AB, Flooded (H
erprint Wetland (EM), Scrub-Shrub Wetland (5 EM System: Riverine (R)/ Subsyst.: Lower mittently Exposed (9), Semipermanently Floc Partly Drained (PD), Farmed (F), Artificial (A) Estimated relative abundance: (4 (Circle one) Unknow Comments:	ss), Forested Wetland in Perennial (2)/ Classes: oded (F), Seasonally Fix High Classes: Riversion similarly classification in the Perennial Classes: Riversion similarly classification in the Perennial Classification in the	(FO) System RB, UB, AB, U coded (C), Sati ine, Depression ed sites with Rare	c Leoustine (LV, Subsystem; Up; US, EM Subsystem; Up; Urated (B), Temporarity Fi nal, Stope, Mineral Soil Fi hin the same Major I rcle] appropriate res. Predomi	e: Limnetic (2) Classe per Perennial (a) Class per P	s: RB, UB, Al ses: RB, UB, Al y Flooded (J) Lacustrine Fr ed Basin, so	W Subsystem: Litteral AB, US/ Water Regim Modifiers: Excavated inge ee definitions) Abunda	(4) Classes; RE es: Permanently (E), Impounded), US, AB, Flooded (H (f), Dihed
erprot Wetland (EM), Scrub-Shrub Wetland (S EW System: Riverine (R)/ Subsyst.: Lower mittendy Exposed (9), Semipermanently Floc Partly Drained (PD), Farmed (F), Artificial (A) . Estimated relative abundance: (c (Circle one) Unknow Comments: . General condition of AA: I. Regarding disturbance: (use	ss), Forested Wetland in Perennial (2)/ Classes: oded (F), Seasonally Fix High Classes: Riversion similarly classification in the Perennial Classes: Riversion similarly classification in the Perennial Classification in the	(FO) System RB, UB, AB, U coded (C), Sati ine, Depression ed sites with Rare etermine [cir Land mana; natural state topped, or of	x Lecustine (LV, Subsystem; Up; Up; Up; Up; Up; Up; Up; Up; Up; Up	t: Limnetic (2) Classe or Perennial (s) Classe or Perennial (s) Classe or Perennial (s) Classe or Perennial (s) Classe ats, Organic Soil Flats, Wontana Watershe Common Donse) nant conditions ad Land not cultivated, grazed or hayed or s or has been subject	is: RB, UB, Alices: RB, UB, UB, UB, UB, UB, UB, UB, UB, UB, U	W Subsystem: Litteral AB, USF Water Regim Modifiers: Excavaled inge ee definitions) Abunda within 500 feet of) Land cultivate ped, subject to sub- inge cloaring, or by cloaring, or by	(4) Classes: RE ea: Permanently (E), Impounded fit AA d or heavily graze stantial fit places deviocical alterations	i, US, AB, Flooded (H (I), Dihad
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erpriet Wetland (EM), Sonub-Shrub Wetland (s EW System Riverine (R) Subsyst: Lower mittendy Exposed (G), Semipermanently Floc Partly Drained (PD), Farmed (F), Artificial (A) Estimated relative abundance: (c (Circle one) Unknow Comments: General condition of AA: I. Regarding disturbance: (use Conditions within AA coccurs and is managed in predominantly natured, hayed, logged, or observate converted, of distor occupied buildings. not cuttivated, but moderately grazed or haye sped, or hay been subject to relatively minor of cuttivated or heavily grazed or logged, subject batantial fill placement, grading, clearing, or hy h road, or building density. Comments: (types of disturbance II. Provides bytef descriptively site. B. Provides bytef descriptively.	ss), Forested Wetland in Perennial (2)/ Classes: oded (F), Seasonally Fix HGM Classes: Riveri of similarly classified of similarly classified of similarly classified on the matrix below to demand state; is not does not contain od or selectively learing, fill our roads or buildings at to retartively ydrological alteration; ce, intensity, season attroduced species of AA and any conduced species of Canada (1)	(FO) System RB, UB, AB, L Cooked (C), San ine, Depression ed sites with Rare etermine [cir Land mana; natural state logged, or of dose not cor kw disturi moderate high distu	c Lecustine (LV, Subsystem Up, US, EW Subsystem Up, US, EW Subsystem Up, United (B), Temporarity Final, Slope, Mineral Soil Filmal, Slope, Min	to timnetic (2) Classes per Perennial (s) Common (s) Comm	se: RB, UB, Alexandre RB, UB, Alexandre RB, UB, Alexandre RB, UB, Alexandre RB, VB, Alexandre RB, VB, Alexandre RB, VB, Alexandre RB, VB, VB, VB, VB, VB, VB, VB, VB, VB, V	Subsystem Litteral AB, USY Water Regim AB, USY Water Regim Modifiers: Excavated inge ee definitions) Abunda within 500 feet of) y Land culture subject to sub- closeing, or by or building der moderate d high disturt high disturt clinical works and	(4) Classes: Ries: Permanently (II), Impounded AA d or heavily graze steroal fill place druby; call alterativity bance bance betty end in to 2	d or logge ment gradies or, high ro
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respect Wetland (EM), Scrub-Shrub Wetland (s. EW Systems Riverine (R) Subsysts: Lower smittently Exposed (d), Semipermanently Floc. Partly Oralned (PD), Farmed (F), Artificial (A). Estimated relative abundance: (d) (Circle one) Unknow Comments: General condition of AA: I. Regarding disturbance: (use Conditions within AA Conditions to continue to the property of the comment of the conditions	ss), Forested Wetland in Perennial (2)/ Classes: oded (F), Seasonally Fix Hom Classes: Riverial of similarly classified of similarly classified of similarly classified on the similarly classified on the similar of contain of or selectively idealing, fill our roads or buildings of to retartively ydrological alteration; the similarly of AA and the similar of Canada Similarly of AA and the similar of Coward of C	(roy' System RB, UB, AB, L coded (C), San ine, Depression ed sites with Rare etermine [cir Land mana, natural state loosed, or of does not cor low distur moderate high distur in, etc.): In state in the control of th	t Lecustine (LV, Subsystem Up, US, EW Subsystem Up, United (B), Temporarity Final, Slope, Mineral Soil Final, Fredominantly, is not grand, hayed, bendies converted, than roads or buildings bance. If the same Authority (B) the same converted, the same converted converted to the same converted, the same converted converted to the same converted, the same converted to the same converted	trimetic (2) Classe per Perennial (3) Class per Perennial (3) Common Dense) Per Perennial Common Dense) Per Perennial Common Land not cultivated, grazed or hayed or a or has been subject contains few reads Row disturbance moderate distur high disturbance to disturbance sticated, feral): (I included in the contains few reads per Perennial (3) Class sticated, feral): (I included in the contains few reads grazed or hayed or a or has been subject contains few reads for disturbance grazed or hayed or a or has been subject contains few reads [do not include un	is: RB, UB, Alses: RB, UB, Aly Flooded (J.) Lacustrine Front de Bassin, so de Bassin,	subsystem Litteral AB, USY Warber Regim AB, USY Warber Regim Modifiers: Excavated inge ee definitions) Abunda within 500 feet of) y Land cultivate pot subject to	AA d or handy graze standard fill place bance betty end in to 2 Milk R in diction above)	d or logoened gradient gradien



SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally I. AA is Documented (D) Primary or critical habit	or Suspecte at (list spec	d (S) to	cont	reatene ain (circ D S	d or E	ndang based	ered on de	Plants	or A	nimals: ntained in	n instru	uctions):					
Secondary habitat (list Incidental habitat (list : No usable habitat	species)			D S D S D S		old s	روء	e.										
II. Rating (use the conclus this function)	ions from i a	bove and	d the	matrix	below I	to arriv	e at [c	ircle) th	e fur	nctional p	points	and rat	ing [H	= high,	M = 1	noderat	te, or L	= low] for
Highest Habitat Level	doc./p	rimary		sus/prir	mary	doc	/seco	ndary	s	us./seco	ndary	dox	:./incid	ental	sus	./incide	ntal	None
Functional Points and Rat	ing 1 (H)			.9 (H)		.8 (1	M)		1.7	7 (M)		5.5	L)		(3(2		0 (L)
Sources for documented us	e (e.g. obser	vations,	reco	rds, etc):											_		. 0 (6)
14B. Habitat for plant or a i. AA is Documented (D) Primary or critical habit Secondary habitat (list Incidental habitat (list No usable habitat II. Rating (use the conclust this function)	or Suspecte at (list spec species) species)	d (S) to les)	coni	tain (circ DS DS DS DS	P.	based	on de	Lica	s cor	(o.cxot	Pk	ins 1	cad				,	= low] for
Highest Habitat Level	doc./p	rimary		sus/prir	mary	doc	/seco	ondary	s	us./seco	ndary	do	./incid	ental	Gus	/incide	ntal	None
Functional Points and Rat	ing 1 (H)			(H) 8.		.7 (M)		.6	6 (M)		.2	(L)		110	7		0 (L)
Sources for documented us	e (e.g. obser	vations,	reco	rds, etc	:.):										-			1 9 (2)
14C. General Wildlife Hab i. Evidence of overall wild Substantial (based on any observations of abundant	ilife use in t of the followi ant wildlife #:	he AA (ing [cheo s or high	ck]): n spe	cies div	ersity ((during	any p	period)	sed o	(Low)	(base	ed on a	ny of th	e follo	wing (check])	: ik use	periods
abundant wildlife sign a presence of extremely interviews with local bid	such as scat, limiting habit	, tracks, at featur	nes es n	t structu ot availa	res, ga able in 1	ame tra	ils, et	Ċ.	a	<u>√</u> 16	ittie to sparse	no wild adiace	life sigr nt upla	nd foo	d sour	ces		of the AA
Moderate (based on any of observations of scatter common occurrence of adequate adjacent uplations interviews with local bid	ed wildlife gr I wildlife sign and food soul	oups or such as rces	indiv	at, track	s, nest	vely fer	v spe ures, (cies du game tr	ring į ails,	peak per etc.	iods							
ii. Wildlife habitat features (L) rating. Structural divers of their percent composition seasonal/intermittent; T/E =	ity is from #1 of the AA (s	 For ee #10). 	class Ab	s cover t breviation	to be o	onside surfac	red ev e wate	enly dis er durat	tribu ions	rted, veg are as fo	etated ollows:	classe P/P =	s must permar	be wit	hin 20	% of ea	ch oth	M), or low er in terms
Structural diversity (see #13)				gh								erate				-	Lo	w)
Class cover distribution	Eve	20.	77		Unev	/en			F	ven			Une	ven.		-	(Eve	~
(all vegetated classes)					One					.7011			One	reti			EVE	
Duration of surface water in ≥ 10% of AA	P/P S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/	1 T/E	Α	P/P	S/I	T/E	A	P/P	S/I	(TE)

Structural diversity (see #13)			,·· .	Hi	gh				Moderate						(w)					
Class cover distribution (all vegetated classes)				Uneven			Even			Uneven				(Even)						
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	TE	A
Low disturbance at AA (see #12i)	E	E	E	Н	Ε	E	н	Н	E	н	н	М	E	Н	М	M	E	н	М	M
Moderate disturbance at AA (see #12i)	Н	н	Н	Н	Н	Н	Н	М	Н	н	М	M	Н	М	M	L	н	М	L	L
HIgh disturbance at AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	L	М	L	L	L	L	L	0	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low) for this function)

Evidence of wildlife use (i)	Wildlife habitat features rating (II)										
	Exceptional	High	Moderate	(Low)							
Substantial	1 (E)	.9 (H)	.8 (H)	.7 (M)							
√loderate	.9 (H)	.7 (M)	.5 (M)	.3.(L)							
Minimal	.6 (M)	.4 (M)	.2 (L)	(1 (L))							

Comments: AA is a narrow linear band of hydrophytic vegetation. Existing wetland is associated directly with drainage directes. This wetland type rarely attracts or provides habitat for a wide workly of wieldite species. Consequently widn'te diversity is low.



14D. General Fish/Aquatic Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish (i.e., fish use is precluded by perched culvert or other barrier letc.). If the AA is not or was not historically used by fish due to tack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective (such as fish use within an irrigation canal), then Habitat Quality (I below) should be marked as "Low", applied accordingly in it below, and noted in the comments.)

Habitat Quality (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating

Duration of surface water in AA		anent / Pere	ennial	Seas	onal / intern	uttent	Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	н	Н	Н	М	М	М	М
Shading – 50 to 75% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	н	Н	М	М	М	М	М	L	L
Shading - < 60% of streambank or shoreline within AA contains rip, or wetland scrub-shrub or forested communities	Н	М	М	М	L	L	L	L	L

ii. Modified Habitat Quality (Circle the appropriate response to the following question. If answer is Y, then reduce rating in I above by one level [E = H, H = M, M = L, L = L]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support?

Y

N

Modified habitat quality rating = (circle)

E

H

M

L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = lowl for this function)

Types of fish known or suspected within AA	Modified Habitat Quality (ii)										
suspected within AA	Exceptional	High	Moderate	Low							
Native game fish	1 (E)	,9 (H)	.7 (M)	.5 (M)							
introduced game fish	(H) Q.	.8 (H)	.6 (M)	.4 (M)							
Non-game fish	.7 (M)	.6 (M)	.5 (M)	.3 (L)							
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)							

Comments: \(\sum_{\beta} \)

14E. Flood Attenuation: (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

	101100017										
Estimated wetland area in AA subject to periodic flooding		T	≥ 10 acres			10, >2 acre	s				
	% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	(25%)	
	AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	.2(L)	
	AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	CILL	

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? No Normants: County Road I year room & residence.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, circle NA here and proceed with the evaluation.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see

Estima	ted maximum acre feet of water contained in wetlands the AA that are subject to periodic flooding or ponding	Γ	>5 acre fee	t	*	5, >1 acre fe	et		≤1 acre foot				
Duratio	on of surface water at wetlands within the AA	P/P	SA ·	T/E	P/P	SA	T/E	P/P	SA .	(TE)			
Wetlan	ds in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.B(H)	.8(H)	.6(M)	.5(M)	.4(M)	.3(L)	2(1)			
Wetlan	ds in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	3(L)	.2(L)	CILY			

Comments: Wetland is ditched adversely impacting surface water storage capacity

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Sediment, nutrient, and toxicant input levels within AA	deliver low or comp substantially	to moderate le ounds such the Impaired, Min s or toxicants,	ing land use wi evels of sedime nat other function nor sedimentations sedimentation or signs of eut esent.	nts, nutrients, ons are not on, sources of	Waterbody on Mi development for nutrients, or toxic use with poten nutrients, or co substantially imp nutrients or toxic	"probable caus ants or AA rect tial to deliver hig mpounds such paired. Major se	es" related to eives or surrou gh levels of se that other fund dimentation, s	sediment, unding land diments, ctions are sources of
6 cover of wedland vegetation in AA	≥ 7	70%	<	70%	€ 70	83	< 7	70%
Evidence of flooding or ponding in AA	Yes	No	Yes	No	(Yes)	No	Yes	No
AA contains no or restricted outlet	1 (H)	1 (H) .8 (H)		.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	(4(MD)	.3 (L)	.2 (L)	.1 (L)

Comments:



14H Sediment/Shoreline Stabilization: (applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which has a maximum depth exceeding 6.6 ft, at low water (e.g., subject to wave action). If does not apply, circle NA here and proceed to next function)

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low) for this function.

% Cover of wedand streambank or	Ouration of surface water adjacent to rooted vegetation								
shoreline by species with deep. binding rootmasses	permanent / perennial	seasonal / intermittent	Temporary / ephemeral						
≥ 65%	1 (H)	.9 (H)	.7 (M)						
35-64%	.7 (M)	.6 (M)	.5 (M)						
< 35%	.3 (L)	.2 (L)	,1 (L)						

Comments:

141. Production Export/Food Chain Support:

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = kw] for this
function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a
surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent;

A	= tempor		ted comp	·			Turine	Veceta		copent 1	5 acres)	(Vegetated component <1 acre)						
В	Hi	gh		erate		ow	- н	11.30.0		erate	_ (10	mò	Hi		Mod	erate	Cli	34)	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	(Yes)	No	Yes	No	Yes	No	((643)	No	
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	H8.	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.494	.3L	
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	,5M	,5M	.3Ł	31	.21,	
TIEI	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	(50)	.4M	.5M	.4M	.4M	.2L	(20)	.1L	
A		1		j		!	1			1							7		

comments [AA is est. a Acres and 1007. regetated,] (Correction

(ERLOR)

14J. Groundwater Discharge/Recharge: (Check the indicators in i & il below that apply to the AA)

i. Dis	charge	Indica	tors
--------	--------	--------	------

- Springs are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- ___AA permanently flooded during drought periods
- ___Wetland contains an outlet, but no inlet
- ___Other

iii. Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating [H = high, L = low] for this function.

Other

II. Recharge Indicators

Wetland contains inlet but no outlet

Permeable substrate present without underlying impeding layer

Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	(N/A (Unknown))

Comments: To many man-induced disturbances (ie dilites, canals, etc) to determine

14K, Uniqueness:

Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Replacement potential	AA contains f mature (>80 y plant associa	r-old) forested	wetland or	rare types	ot contain pro and structu high or cont	AA does not contain previously cited rare types or associations and structural diversity (#13) is			
	,	MNHP		, , , , ,	•	by the MNHP		low-modera	
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.B (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3(1)	(211)	.1 (L)

Comments:

14L. Recreation/Education Potential: I. Is the AA a known rec./ed. site: (circle) Y N (If yes, rate as [circle] High [1] and go to ii; if no go to iii)

ii. Check categories that apply to the AA: ____Educational/scientific study; ____Consumptive rec.; ____Non-consumptive rec.; ____Other

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec_led. use? Y (N) (If yes, go to ii, then proceed to iv; if no, then rate as [circle] Low [0.1])

ly. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or t, = low] for this function.

Ownership	Disturbance at AA (#12)				
	low	moderate	Chigh		
public ownership	1 (H)	.5 (M)	2(1)		
private ownership	.7 (M)	.3 (L)	(10)		



FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	0.3		1	
B. MT Natural Heritage Program Species Habitat	0.1		1	
C. General Wildlife Habitat	0.1		1	
D. General Fish/Aquatic Habitat	NA		NA	
E. Flood Attenuation	0.1		1	
F. Short and Long Term Surface Water Storage	0.2		1	
G. Sediment/Nutrient/Toxicant Removal	0.4		1	
H. Sediment/Shoreline Stabilization	NA		NA	
Production Export/Food Chain Support	02 0.5		1	
J. Groundwater Discharge/Recharge	NA		*VA	
K. Uniqueness	0.2		1	
L. Recreation/Education Potential	0.1		1	
Totals:	1.7 2.0	The state of the s	9.0	

17/90=1990 2,0/9,0= 22% OVERALL ANALYSIS AREA (AA) RATING; (Circle appropriate category based on the criteria outlined below) Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes", or Total actual functional points > 80% (round to nearest whole #) of total possible functional points. Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points. Category III Wetland: (Criteria for Categories I, II or IV not satisfied) Category IV Wetland) (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy critéria go to Category III) "Low" rating for Uniqueness; and "Low" rating for Production Export/Food Chain Support; and Total actual functional points < 30% (round to nearest whole #) of total possible functional points

Appendix E

BIRD SURVEY PROTOCOL
MACROINVERTEBRATE SAMPLING PROTOCOL
GPS PROTOCOL

MDT Wetland Mitigation Monitoring Musgrave Lake Zurich, Montana



BIRD SURVEY PROTOCOL

The following is an outline of the MDT Wetland Mitigation Site Monitoring Bird Survey Protocol. Though each site is vastly different, the bird survey data collection methods must be standardized to a certain degree to increase repeatability. An Area Search within a restricted time frame will be used to collect the following data: a bird species list, density, behavior, and habitat-type use. There will be some decisions that team members must make to fit the protocol to their particular site. Each of the following sections and the desired result describes the protocol established to reflect bird species use over time.

Species Use within the Mitigation Wetland: Survey Method

Result: To conduct a bird survey of the wetland mitigation site within a restricted period of time and the budget allotment.

Sites that can be circumambulated or walked throughout.

These types of sites will include ponds, enhanced historic river channels, wet meadows, and any area that can be surveyed from the entirety of its perimeter or walked throughout. If the wetland is not uncomfortably inundated, conduct several "meandering" transects through the site in an orderly fashion (record the number and approximate location/direction of the transects in the field notebook; they do not have to be formalized or staked). If a very small portion of the site cannot be crossed due to inundation, this method will also apply. Though the sizes of the site vary, each site will require surveying to the fullest extent possible within a set time limit. The optimum times to conduct the survey are in the morning hours. Conduct the survey from sunrise to no later than 11:00 AM. (Note: some sites may have to be surveyed in the late afternoon or evening due to time constraints or weather; if this is the case, record the time of day and include this information in your report discussion.) If the survey is completed before 11:00 AM and no additions are being made to the list, then the task is complete. The overall limiting factor regarding the number of hours that are spent conducting this survey is the number of budgeted hours; this determination must be made by site by each individual.

In many cases, binoculars will be the only instrument that is needed to identify and count the birds using the wetland. If the wetland includes deep water habitat that can not be assessed with binoculars, then a scope and tripod are necessary. If this is the case, establish as many lookout posts as necessary from key vantage points to collect the data. Depending on the size of the open water, more time may be spent viewing the mitigation area from these vantage points than is spent walking the peripheries of more shallow-water wetlands.

Sites that cannot be circumambulated.

These types of sites will include large-bodied waters, such as reservoirs, particularly those with deep water habitat (>6 ft) close to the shore and no wetland development in that area of the shoreline. If one area of the reservoir was graded in such a way to create or enhance the development of a wetland, then that will be the area in which the ambulatory bird survey is conducted. The team member must then determine the length of the shoreline that will be surveyed during each visit.



As stated above in the ambulatory site section, these large sites most likely will have to be surveyed from established vantage points.

Species Use within the Mitigation Wetland: Data Recording

Result: A complete list of bird species using the site, an estimate of bird densities and associated behaviors, and identification of habitat use.

1. Bird Species List

Record the bird species on the Bird Survey - Field Data Sheet using the appropriate 4-letter code of the common name. The coding uses the first two letters of the first two words of the birds' common name or if one name, the first four (4) letters. For example, mourning dove is coded MODO and mallard is MALL. If an unknown individual is observed, use the following protocol and define your abbreviation at the bottom of the field data sheet: unknown shorebird: UNSB; unknown brown bird (UNBR); unknown warbler (UNWA); unknown waterfowl (UNWF). For a flyover of a flock of unknown species, use a term that describes the birds' general characteristics and include the approximate flock size in parentheses; do not fill in the habitat column. For example, a flock of black, medium-sized birds could be coded: UNBB / FO (25). You may also note on the data sheet if that particular individual is using a constructed nest box.

2. Bird Density

In the office, sum the Bird Survey – Field Data Sheet data by species and by behavior. Record this data in the Bird Summary Table.

3. Bird Behavior

Bird behavior must be identified by what is known. When a species is simply observed, the behavior that it is immediately exhibiting is what is recorded. Only behaviors that have discreet descriptive terms should be used. The following terms are recommended: breeding pair individual (BP); foraging (F); flyover (FO); loafing (L; e.g. sleeping, roosting, floating with head tucked under wing are loafing behaviors); and, nesting (N). If more behaviors are observed that do have a specific descriptive word, use them and we will add it to the protocol; descriptive words or phrases such as "migrating" or "living on site" are unknown behaviors.

4. Bird Species Habitat Use

We are interested in what bird species are using which particular habitat within the mitigation wetlands. This data is easily collected by simply recording what habitat the species was initially observed. Use the following broad category habitat classifications: aquatic bed (AB - rooted floating, floating-leaved, or submergent vegetation); forested (FO); marsh (MA – cattail, bulrush, emergent vegetation, etc. with surface water); open water (OW – primarily unvegetated); scrubshrub (SS); and upland buffer (UP); wet meadow (WM – sedges, rushes, grasses with little to no surface water). If other categories are observed onsite that are not suggested here, we will make a new category next year.



E-2

AQUATIC INVERTEBRATE SAMPLING PROTOCOL

Equipment List

- D-frame sampling net with 1 mm mesh. Wildco is a good source of these.
- Spare net.
- 1-liter plastic sample jars, wide-mouth. VWR has these: catalog #36319-707.
- 95% ethanol: Northwest Scientific in Billings carries this.

All these other things are generally available at hardware or sporting goods stores. Make the labels on an ink jet printer preferably.

- hip waders.
- pre-printed sample labels (printed on Rite-in-the-Rain or other coated paper, two labels per sample).
- pencil.
- plastic pail (3 or 5 gallon).
- large tea strainer or framed screen.
- towel.
- tape for affixing label to jar.
- cooler with ice for sample storage.

Site Selection

Select the sampling site with these considerations in mind:

- Select a site accessible with hip waders. If substrates are too soft, lay a wide board down to walk on.
- Determine a location that is representative of the overall condition of the wetland.

Sampling

Wetland invertebrates inhabit the substrate, the water column, the stems and leaves of aquatic vegetation, and the water surface. Your goal is to sweep the collecting net through each of these habitat types, and then to combine the resulting samples into the 1-liter sample jar.

Dip out about a gallon of water into the pail. Pour about a cup of ethanol into the sample jar. Fill out the top half of the sample labels, using pencil, since ink will dissolve in the ethanol.

Ideally, you can sample a swath of water column from near-shore outward to a depth of approximately 3 feet with a long sweep of the net, keeping the net at about half the depth of the water throughout the sweep. Sweep the water surface as well. Pull the net through a vegetated area, beneath the water surface, for at least a meter of distance.

Sample the substrate by pulling the net along the bottom, bumping it against the substrate several times as you pull.



This step is optional, but it gives you a chance to <u>see</u> that you've collected some invertebrates. Rinse the net out into the bucket, and look for insects, crustaceans, etc. If necessary, repeat the sampling process in a nearby location, and add the net contents to the bucket. Remember to sample all four environments.

Sieve the contents of the bucket through the straining device and pour or carefully scrape the contents of the strainer into the sample jar.

If you skip the bucket-and-sieve steps, simply lift handfuls of material out of the sampling net into the jars. In either case, please include some muck or mud and some vegetation in the jar. Often, you will have collected a large amount of vegetable material. If this is the case, lift out handfuls of material from the sieve into the jar, until the jar is about half full. Please limit material you include in the sample, so that there is only a single jar for each sample.

Top off the sample jar with enough ethanol to cover all the material in the jar. Leave as little headroom as possible.

It is not necessary to sample habitats in any specified order. Keep in mind that disturbing the habitats prior to sampling will chase off the animals you are trying to capture.

Complete the sample labels. Place one label inside the sample jar and tape the other label securely to the outside of the jar. Dry the jar before attaching the outer label if necessary. In some situations, it may be necessary to collect more than one sample at a site. If you take multiple samples from the same site, clearly indicate this by using individual sample numbers, along with the total number of samples collected at the site (e.g. Sample #3 of 5 total samples).

Photograph the sampled site.

Sample Handling/Shipping

- In the field, keep collected samples cool by storing them in a cooler. Only a small amount of ice is necessary.
- Inventory all samples, preparing a list of all sites and enumerating all samples, before shipping or delivering to the laboratory.
- Deliver samples to Rhithron.



GPS Mapping and Aerial Photo Referencing Procedure

The wetland boundaries, photograph location points and sampling locations were field located with mapping grade Trimble Geo III GPS units. The data was collected with a minimum of three positions per feature using Course/Acquisition code. The collected data was then transferred to a PC and differentially corrected to the nearest operating Community Base Station. The corrected data was then exported to ACAD drawings in Montana State Plain Coordinates NAD 83 international feet.

The GPS positions collected and processed had a 68% accuracy of 7 feet except in isolated areas of Tasks .008 and .011, where it went to 12 feet. This is within the 1 to 5 meter range listed as the expected accuracy of the mapping grade Trimble GPS.

Aerial reference points were used to position the aerial photographs. This positioning did not remove the distortion inherent in all photos; this imagery is to be used as a visual aide only. The located wetland boundaries were given a final review by the wetland biologist and adjustments were made if necessary.

Any relationship of features located to easement or property lines are not to be construed from these figures. These relationships can only be determined with a survey by a licensed surveyor.

